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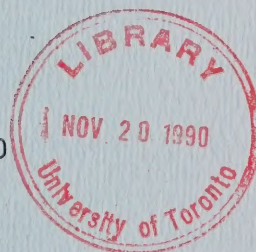
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# ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 254

DATE: Thursday, November 1, 1990



BEFORE:

A. KOVEN Chairman

E. MARTEL Member

FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

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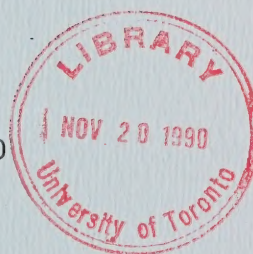
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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL  
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR  
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental  
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental  
Assessment for Timber Management on Crown  
Lands in Ontario;

- and -

IN THE MATTER OF a Notice by the  
Honourable Jim Bradley, Minister of the  
Environment, requiring the Environmental  
Assessment Board to hold a hearing with  
respect to a Class Environmental  
Assessment (No. NR-AA-30) of an  
undertaking by the Ministry of Natural  
Resources for the activity of timber  
management on Crown Lands in Ontario.

-----  
Hearing held at the offices of the Ontario  
Highway Transport Commission, Britannica  
Building, 151 Bloor Street West, 10th Floor,  
Toronto, Ontario, on Thursday, November 1st,  
1990, commencing at 9:00 a.m.

-----  
VOLUME 254

BEFORE:

MRS. ANNE KOVEN  
MR. ELIE MARTEL

Chairman  
Member





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(iv)

I N D E X   O F   P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>GEORGE MAREK</u> ; Resumed	45676
Direct Examination by Ms. Swenarchuk	45677





1 ---Upon commencing at 9:00 a.m.

2 MADAM CHAIR: Good morning. Please be  
3 seated.

4 Good morning, Mr. Marek.

5 Ms. Swenarchuk, we are going to start the  
6 lunch break -- are the microphones on today?

7 MR. HUFF: Yes, I just checked.

8 MADAM CHAIR: We are going to start the  
9 lunch break at quarter to twelve today.

10 MS. SWENARCHUK: Fine. Madam Chair, with  
11 regard to the questions that arose yesterday about  
12 exact locations of the photographs, Ms. Cronk sent us a  
13 fax in the early evening last night detailing the  
14 slides on which the request is being made for exact  
15 identification of sites. That list amounts to 97 of  
16 the slides.

17 Mr. Marek and I worked for several hours  
18 last night, that's after he had spent all day  
19 testifying here, and worked on a number of specific  
20 locations and also worked on the question of really  
21 what information is available to satisfy this request.

22 Clearly, the information is not available  
23 to pinpoint these 97 sites. What is available is a  
24 series of maps indicating the route taken by Mr. Marek  
25 on, I believe, two of the trips that were done in

1 preparing of this. That's, of course, in relation to  
2 recent slide. Mr. Marek has indicated before you the  
3 long history of his collection of slides, some of which  
4 you have seen.

5 What I propose is -- and frankly my first  
6 priority is not to have his testimony interrupted, but  
7 rather to allow him to continue with his testimony  
8 today, to meet with the Industry people at noon and  
9 indicate to them what we think we can do. If that's  
10 not satisfactory to them, they may wish to discuss it  
11 with you at four o'clock this afternoon or at some  
12 other time.

13 If the information we provide to them is  
14 not satisfactory, they can of course pursue the matter  
15 further with Mr. Marek in cross-examination, as I  
16 expect they would. We will attempt to eliminate that  
17 need by providing as much as we have. I predict,  
18 though, that it is not going to be totally satisfactory  
19 to them.

20 I might add as well that on Monday of  
21 this week additional interrogatories, supplementary  
22 interrogatories were provided to us following upon  
23 their indication before you last Wednesday that they  
24 were not satisfied with the responses obtained the  
25 previous Friday.



1                   Those interrogatories, of course, were  
2       received less than 48 hours before Mr. Marek's  
3       testimony was scheduled to begin. Again, we have  
4       indicated to them that we will do what we can to answer  
5       to them. We hvae indicated to them as well our  
6       position that many of the questions provided amount to  
7       information which we are not obliged to provide, but we  
8       will attempt to provide.

9                   All of this, of course, takes an enormous  
10      amount of time and our priority, of course, is to  
11      present the evidence before you as clearly and cogently  
12      and concisely as possible and not to be diverted by  
13      other informational requirements.

14                  We have, however, as I said, on that  
15      matter as well committed to doing what we can to  
16      satisfy the request.

17                  I merely bring this to your attention so  
18      that you understand the attempts we are making and the  
19      time that is being taken outside of this hearing room  
20      to comply with the Industry requests. We will do what  
21      we can, but there is a limit to what we can do.

22                  With regard to the location of the  
23      slides, as I indicated, my proposal is, we have the  
24      maps that are available to us here today, that we meet  
25      with them at lunch time, indicate what we think we are

1       able to do and then as a procedural matter they may  
2       wish to raise it with you later.

3               MADAM CHAIR: Ms. Cronk, is that proposal  
4       acceptable to you?

5               MS. CRONK: Yes, it is in two respects,  
6       Madam Chair, and I won't take any lengthy time now, but  
7       I do wish the Board to understand the difficulty that  
8       has arisen for the Industry and as well, I take it, for  
9       Mr. Hanna.

10              Dealing just with the location aspect for  
11       a moment, when the interrogatories for this panel were  
12       submitted in approximately the third week of September,  
13       specific locations were requested and that's because  
14       throughout this witness' written evidence statement  
15       there are allegations of allegedly improper or  
16       inadequate timber management practices specifically by  
17       Industry.

18              The only way that we can respond to those  
19       is to have an understanding of exactly where it is they  
20       are said to have taken place. So the request was made  
21       then; that is, in the latter part of September, in the  
22       hope that whatever efforts could be brought to bear to  
23       identify these locations would commence with delivery  
24       of interrogatory responses.

25              When interrogatory responses came, they

1 were three weeks late, October 19th and then October  
2 22nd. I say that not to be critical of my friend. I  
3 understand how these things can happen, but that is why  
4 when we came to deal with supplementary interrogatories  
5 we were two days away from the evidence-in-chief.

6 I am pleased to meet with Ms. Swenarchuk  
7 at noon to see if we can work this out. If we can't,  
8 and if there is some relief that I need seek from the  
9 Board, then with your indulgence I will do that after I  
10 have had my meeting with her, but that's the problem.

11 The companies affected by these  
12 allegations, many of which you heard yesterday as you  
13 went through the slides, have to be in a position to  
14 understand where it is that it is said these things  
15 took place because their position, of course, in many  
16 instances is that it didn't occur or the facts are not  
17 as they have suggested.

18 In any event, I can't respond to that  
19 until I know. That's the reason for the request. I  
20 will be pleased to meet with Ms. Swenarchuk and we will  
21 raise it again if we have to, but we don't want to take  
22 the Board's time with this if we avoid it.

23 MADAM CHAIR: Thank you, Ms. Cronk.

24 The Board would just remind the parties  
25 that it has never been a mandate or this Board and it



1 has never been our intention to focus on the practices  
2 of specific companies. As you know, that's not what  
3 the class environmental assessment is about at all.

4 MS. CRONK: I understand.

5 MADAM CHAIR: I can understand from your  
6 client's point of view that you want to cover this  
7 ground very thoroughly, but understand from the Board's  
8 point of view, we are not here to hear about the  
9 practices of specific companies in your industry.

10 MS. CRONK: I completely understand that,  
11 Madam Chair, but on the other hand, you will appreciate  
12 their perspective when allegations of this kind are  
13 made in a public forum after you have received months  
14 of evidence that what they invite you to accept as  
15 professional conduct and the highest of standards in  
16 the field.

17 It is a matter of great sensitivity and  
18 concern to them and they are permitted by law, of  
19 course, as the Board so frequently allowed them to do,  
20 to respond to it. That's all I am asking for.

21 MADAN CHAIR: Fine.

22 MS. SWENARCHUK: I appreciate that last  
23 comment.

24 Just one last addition. Having received  
25 the original request for further particulars of

1 location, the further particulars that were available  
2 to us were provided in the revised slide list which was  
3 sent to the parties on October 25th. It is now  
4 apparent that that list does not satisfy the Industry's  
5 request and, therefore, we are attempting again to  
6 provide more, but we have made the attempt before.

7 And following your comments, Madam Chair,  
8 which I appreciate very much, about the nature of the  
9 class assessment and the inclination not to focus on  
10 any particular company's actions, that is of course  
11 precisely our approach as well and it is the approach  
12 that any party coming before this Board on this kind  
13 assessment must follow. None of us can possibly  
14 examine the actions right across area the undertaking  
15 of the undertaking, particularly of any particular  
16 party, and that is exactly the direction of the  
17 evidence you will be hearing, that we are concerned  
18 about practices overall as opposed to, in any sense,  
19 focusing on any particular company.

20 MADAM CHAIR: That's fine. The Board  
21 isn't interested in hearing anymore about this matter  
22 and we depend on you and Ms. Cronk to sort it out.

23 MS. SWENARCHUK: Yes.

24 GEORGE MAREK, Resumed

25 MADAM CHAIR: Okay, Mr. Marek. Ready to

1 go?

2 CONTINUED DIRECT EXAMINATION BY MS. SWENARCHUK:

3 Q. Mr. Marek, just one question before  
4 we dim the lights and commence with the next slide.  
5 A clarification from yesterday.

6 Yesterday, Mr. Marek, with regard to  
7 slide No. 36, you testified about this proliferation of  
8 seedlings which occurs after a natural wild fire and  
9 you used the figure 200,000 seedlings. I just would  
10 like you to clarify for the Board whether that 200,000  
11 was seedlings per acre or per hectare?

12 A. This specific photograph shows  
13 200,000 seedlings per acre.

14 MADAM CHAIR: That's photograph 21?

15 MS. SWENARCHUK: 36, Madam Chair.

16 I believe we are ready to commence today  
17 Madam Chair, Mr. Martel, Mr. Marek, at slide No. 51.

18 MR. HUFF: This is slide 50?

19 THE WITNESS: Yes, we had this yesterday.  
20 The normal operations on organic sites in the Clay  
21 Belt -- organic sites --

22 MS. SWENARCHUK: Q. Excuse me. The one  
23 before, Mr. Marek, slide No. 51, cut-over waste,  
24 Iroquois Falls Forest 1987.

25 A. Yes. So this is slide No. 51; right?



1 Q. That's right.

2 A. Okay. The explanation I had was this  
3 "waste" was that probably some young stands or younger  
4 stands were harvested and small diametres of trees were  
5 involved.

6 The photograph show very clearly the  
7 timber on the photograph is not very large, so it must  
8 have been probably poor sized or, in this case, it was  
9 probably younger stands which didn't contain large  
10 diametres, and the skidders which were utilizing only  
11 the larger, the DBH trees, were, of course, disrupted  
12 these smaller trees on the pass to the road.

13 This was right along the main road there  
14 which was just recently built at that time, 1987, when  
15 I visited the site and I thought it was pretty wasteful  
16 practice.

17 However, perhaps it's worthwhile to  
18 mention here that our Crown Timber Act prescribe  
19 practice which I don't agree with. I think that Crown  
20 Timber Act stipulates merchantable material,  
21 merchantible timber raw, size and so on, big diameter,  
22 small diameter and could be very easily picked up from  
23 the Crown Timber Act.

24 I think that the Crown Timber Act should  
25 in a case like this deal with small material and force

1 the harvesting operation to minimize this kind of waste  
2 by lowering the diameters to reasonable size so  
3 material can be utilized, taken to the mills and that  
4 would prevent the waste.

5 It's obviously that economics are  
6 involved here. It's pretty obvious to me that perhaps  
7 what we have done or do or done in the past was  
8 justified. However, with the shortages or possible  
9 shortages in the future, with the price of the wood,  
10 with the probable difficulties in the mill  
11 technologies, which play a very important part here  
12 because this undersized wood -- "undersized wood" in  
13 many instances cannot be utilized because the machinery  
14 is not used in the mill to utilize that material and  
15 that all should be put together.

16 During my trips, I have noticed  
17 frequently that the operators were trying to utilize  
18 smaller diameter trees, both by the company for their  
19 own interest because they get paid for it, and leaving  
20 that stuff on the ground, of course you don't pay for  
21 it, you just mess up the whole site.

22 The technology of the mill should be  
23 improved to such a degree that it could be chipped when  
24 it's down on the ground and not left standing. Trees  
25 which are left standing, there's nothing wrong with it,

1 they provide seed source and protection and perhaps  
2 it's good for game and wildlife, but this kind of waste  
3 I see is unnecessary.

4 Next one, please.

5 Now, this operation is in Vincent  
6 Township, Domtar, and I suppose wouldn't take too much  
7 years to find these areas. This is right along the  
8 roads we travelled in public season and it pictures  
9 very clearly one condition and that is deep rutting by  
10 skidders, by machine forwarding the timber to the road.  
11 It shows exposure to the organic material which is  
12 gouged up. It also shows the kind of messiness you  
13 create by extracting trees.

14 Now, could this be improved? Besides, of  
15 course, this problem of bare rock showing and I don't  
16 know what else, but again here I'm not bashing Domtar  
17 because you can see this operation very clearly on many  
18 sites of northern Ontario where skidders are being  
19 used. Some problem was minimized by the wide tire  
20 skidders, but not in summer, I don't think it's too  
21 much difference, but logging occurs in spring; in other  
22 words, the frost-free season and frost-free season,  
23 Madam Chairman, is some time between March -- say,  
24 April, end of April, May and right to, say, October  
25 when the frost moves in again.



1                   Then you get this kind of messy  
2           operation. Now, regardless what you do here, if you  
3           planted it or propose all kinds of prescriptions, which  
4           I don't think is futile in this case, that site is  
5           being affected very clearly and, as I said, occur  
6           frequently right across the boreal forest. I think  
7           this could be minimized. I hear quite often it's  
8           supposed to be minimized, mitigated -- you know, this  
9           jargon, but the fact is this occurs and it shouldn't  
10          occur.

11                   Ma'am, have you got any question?

12                   Q. Yes, Mr. Marek. I just want to  
13          clarify. Are you saying that you think regeneration  
14          treatment of this site would be futile?

15                   A. Well, let me put it this way. You  
16          can plant trees, which is being done, these sites are  
17          being planted, and I follow this planting carefully and  
18          I go next year and the year after and year after. I've  
19          got a document later on that usually the trees do not  
20          have a very good growth, or if they survive. If they  
21          don't survive, of course they are dead, so it's all  
22          wasted.

23                   No, I don't think that sites like this  
24          cannot create any good results in any kind of  
25          regeneration because it's just the site is so heavily

1       disturbed that you can't do very much about it.

2                   One of the interesting thing is, quite  
3       often we talk about percentages. Now, how much of this  
4       area has been affected? Is it 10 per cent, 15, per  
5       cent, 20 per cent? The argument comes up quite  
6       frequently it is the minimum.

7                   Now, from my professional point of view,  
8       Madam Chair, I would say this is not minimum. Now,  
9       again, you have got to be a forester or professional  
10      who follows this up and see the kind of successional  
11      stages of these damages and this is quite frequently  
12      done, but it's perhaps not publicized.

13                  The damage sometimes is over large areas,  
14      sometimes over the small areas, and depending on the  
15      terrain, depending on the landscape itself, but in this  
16      case I would say the damage is obviously more than 50  
17      per cent, I would guess. I didn't measure it, but I  
18      think it is over 50 per cent.

19                  Q. Again, Mr. Marek, I just want to  
20      clarify. Do you mean -- 50 per cent of what exactly?  
21      50 per cent of the size of this site, is that what the  
22      50 per cent is referring to?

23                  A. When you start judging, you have to  
24      have some measure of judgment. So let's say we are  
25      taking the area as it is shown on the screen, which may

1 be -- taking a good guess on it, I would say maybe 25,  
2 28 encompassed right out to the moose reserve. It's a  
3 moose corridor, by the way. Let's say 15, 20. I  
4 didn't measure it, and just by rough guess what  
5 percentages would you say is heavily disturbed, what  
6 area is not disturbed considering the area has been ---  
7 depending on all kinds of slash is on the site, some  
8 debris is birch or something, these pools of water.

9 It's not only the pools of water, it's  
10 what is between the pools of water, where you don't  
11 plant, we don't plant trees in the water, but I would  
12 say more than 50 per cent. We can argue about what you  
13 would lose there if we take a measure and rubber boots  
14 and go there, which nobody wants to do.

15 Okay.

16 Q. Okay. Go ahead.

17 A. This is a microsite of -- say, if  
18 that was a macrosite, this is a microsite which is  
19 damaged and it's apart of the same operation for your  
20 record. It's the same area which has been cut at the  
21 same time. You can see the heavy disturbance here very  
22 clearly. (indicating)

23 The main problem which I quite often see  
24 is the new regulation of cleanness in the forest and,  
25 for instance, the company's by law are required now to



1 clean the machinery, logging machinery in certain  
2 places, not to pollute the area, spill the gas, spill  
3 the oil. It's frequently mentioned and I think the  
4 companies are doing -- well, effort to do that, but  
5 what we do not realize is that all machines are full of  
6 grease everywhere, not only lines, you know, connecting  
7 the hydraulic system and so on, but they are usually  
8 leaking anyway. There's are all kind of grease,  
9 there's all kind of material around.

10 Now, when, for instance, a hose like this  
11 is broken or a connection is loose or something like  
12 that, the machine operator who goes to that kind of  
13 terrain doesn't notice that immediately because he's  
14 sitting there driving that vehicle to get out of this  
15 mess and all of a sudden he notices that on the road.  
16 What quite frequently happens -- I have studied these  
17 things and watched them very carefully. If you have a  
18 little spill, it leaks always. In these areas which  
19 are be heavily disturbed, quite often witness traces of  
20 oil and all that stuff. That's, of course -- it is  
21 again technology of our equipment and the possibility  
22 of supervision to watch it.

23 Q. Now, with respect to the rutting and  
24 ponding that we see on this slide, Mr. Marek, how could  
25 this skidding have been done on such a site to avoid

1       this?

2                   A. May I see the previous slide, please.  
3       In order to deal with this issue, I would like to have  
4       a macro kind of thing because you're talking about  
5       different possibilities.

6                   Q. We are now looking at slide 53. we  
7       Will now be going back to slide 52.

8                   A. The previous slide. Okay. What are  
9       the possibilities? Say this is the access road where  
10      the operators are delivering wood from the site. And  
11      while this is a very difficult terrain, it is a kind of  
12      washboard terrain or combination of many site  
13      conditions where you have upland dry, rocky and then  
14      you go in these drainage sites where you have muck.

15                   Of course, this has been dealt with  
16      throughout the world. How are we going to prevent  
17      this, how are we going to deliver stuff, how are we  
18      going to prevent this. And, of course, one way is  
19      better planning of operation, the supervision of wood  
20      delivery. If the wood got to come up here being  
21      delimbed, slashed, backed up and loaded, then the  
22      shortest route or the shortest distance, of course, is  
23      here, bang, bang, bang, here we go and here pile it up  
24      and take it on home. (indicating)

25                   In Europe, quite frequently the foresters

1 or the supervisors -- and I don't think this is  
2 actually the forester's job because foresters have  
3 better things to do than that, but it's strictly  
4 supervisory job of very elementary protection aspect.  
5 He has got to say: Okay. Here we have an area of 25  
6 acres, say 25 areas acres, let's look at the area and  
7 walk it and design a system which will protect -- a  
8 delivery system which will protect this kind of damage.

9 One of them would be, of course, that  
10 wood from here not necessarily be delivered the  
11 shortest way, the most economical way. You see, even  
12 here, the economy of short delivery is questionable  
13 because damage not only happened to the site itself,  
14 but it's tough on equipment. Indirectly that equipment  
15 is suffering because to fight terrain like this is one  
16 thing, to go out on a jack pine flat on a sandy outwash  
17 and go full speed not to fight the terrain is the other  
18 story. So you have two points of economics. The  
19 company director or the operator pay for this mess,  
20 too, because he's tough on that equipment.

21 So anyway, let's say the shortest is the  
22 best way, so you mark it up this way. The other answer  
23 would be let's design a route where all wood which will  
24 be harvested along this pathway maybe go like this  
25 instead of directly like that. (indicating)



1                   Now, I agree seeing this country for many  
2       years and being in it myself that you cannot always, of  
3       course. Always terrain is there and you're restricted,  
4       but it should be at least done in such a way to  
5       minimize this and deliver in such a way that this will  
6       not occur. In other words...

7                   MR. MARTEL: Is that a body of water  
8       behind? As I look up in that picture in the  
9       background, is that some small pond or what?

10                  THE WITNESS: Are you talking about this?  
11       (indicating)

12                  MR. MARTEL: No, over to your -- yes,  
13       right in there. What is that?

14                  THE WITNESS: This is gouged out.

15                  MR. MARTEL: That's gouged out?

16                  THE WITNESS: Gouged out, yes.

17                  MS. SWENARCHUK: Q. During the logging,  
18       Mr. Marek?

19                  A. Yes, during the logging. I have a  
20       picture which presents this area before cut. Let's go  
21       forward, so perhaps we can have a further explanation  
22       on it.

23                  Yes, this is a problem that occurs. When  
24       the skidders during the summer do this kind of  
25       delivery, this damage is inevitable because you are

1                   Certainly it could be chipped, certainly  
2           it could be utilized in such a way that we don't leave  
3           a very valuable part of the tree in the bush. And  
4           tops, again, there are people who say tops are no good.  
5           Talking about fiber, this is very good fiber in these  
6           tops. It's a young fiber, it's a moist fiber. There  
7           are all good points about leaving this in the bush for  
8           economic reasons.

9                   Transportation, we don't transport small  
10          wood they say, it's under-sized wood, the debarkers get  
11          plugged with a small wood because they are geared to  
12          the large diameters or large surface, so they leave it  
13          in the bush.

14                  Again, this is not Domtar's problem, this  
15          is a problem of our logging practices in boreal  
16          forests, problem with our Crown Timber Act which allows  
17          this because when you start measuring -- I have a scale  
18          slices, my scale is from 1951, and I know very well the  
19          check scale. I have measured many of these and  
20          sometimes you have a problem. Okay, this is, say, two,  
21          three inches and here it's only four, does not qualify  
22          as a merchantable log.

23                  I think the Crown Timber Act, in order to  
24          do something about this, the Crown Timber would have to  
25          be changed and, of course, the technology in a mill

1 letting telluric water -- say, you have a good rain  
2 when it is this long, where does water go? Always  
3 down, never up. Okay. So telluric water goes in a low  
4 lying area which is already wet, always been wet, but  
5 was protected by the moss layers and by the forest  
6 floor and trees, and now you take everything off so you  
7 pool all that water together in the large little ponds  
8 which may be good for ducks. I think I've seen lots of  
9 ducks here in this picture.

10 It definitely does damage to timber  
11 production and does not maintain the productivity of  
12 the site as we wish it to be. So, no, this doesn't  
13 happen on dry sites, like if you have a dry jack pine  
14 stand with lots of sand it doesn't happen because the  
15 problem of water is not there in the first place, but  
16 when you have this problem of water, then you have, of  
17 course, condition like that.

18 Anymore questions, counsel?

19 Q. No, I think we can go on now. We  
20 have already seen slide No. 53, so let's go now to  
21 slide 54.

22 A. It's the same area, same area taken  
23 at the same time. Now, again, here we talk about  
24 utilization, Madam Chair, we talk about, why should we  
25 leave this in the bush.

1 will have to adapt to it.

2 You know, I get lots of visitors from  
3 Europe, Swedes, Finns and Czechoslovakians. They look  
4 at this and say this: How the hell can you get rid of  
5 this problem.

6 MR. MARTEL: If you had a different form  
7 of stumpage which charged not wood delivered at the  
8 mill but what is cut in the bush, do you think that  
9 would lead to Industry developing technology that  
10 would, in fact, utilize that material?

11 THE WITNESS: Mr. Martel, there are two  
12 aspects to this. It's not only delivery to the mill,  
13 it's also -- the problem is that our scaling system is  
14 based on payment in the mill; in other words, this is  
15 not economic for us.

16 MR. MARTEL: That's the point I'm making.  
17 If you had a different form of stumpage, would that  
18 lead people to find a way of utilizing this material?

19 THE WITNESS: We tried that. Ministry of  
20 lands and forests tried. We had instituted and it's  
21 still practised in some province that you apprise the  
22 wide on a stump in the bush. In other words, you  
23 cruise it and say here -- standing up, of course, in  
24 the forest. You crews it and, say, there's a hundred  
25 cords, that's what you're going to pay for. How you



1 drive it's your business. In other words, it's paid  
2 for as a Crown dues to the government, to the  
3 taxpayers.

4 Now, we can abandon it and say: Okay,  
5 you are going to pay for it the bush on a scale rate --  
6 weight scale, which is again other things, which  
7 bothers me for quite a while because I was involved  
8 with Dick, Marathon Corporation in comparison of  
9 weights. You know, fresh wood cut has a different  
10 weight than wood cut and left there for two years or  
11 one year or, as a matter of fact, seasons makes a hell  
12 of a difference too because you have a sap and wood  
13 included in the weight.

14 So I personally that this kind of short  
15 cut, cut it and take it down to the mill is not fair to  
16 the taxpayer itself, to the Crown. However, the other  
17 problem I see coming up is this, that when the whole  
18 old scaling method was done, which I was part of, that  
19 you have a check scale, this check scale is running  
20 like crazy checking on these tops and damages and so  
21 on.

22 For one reason or another, I suppose,  
23 after the FMA was instituted and the responsibility of .  
24 licensees or FMA holders were outlined, somehow MNR  
25 pulled out of this kind of checking system, leaving

1 quite frequently on the company; in other words, you  
2 supervise yourself, it's going to be okay.

3 Now, my experience throughout the world  
4 is that it sometimes works and lots of time it does not  
5 work because when you deal with almighty buck, you  
6 know, and that's almighty buck here; you get it to the  
7 mill, you are going to pay for it here or you will not  
8 pay for it, a few cords here, there, anywhere and if  
9 it's not enforced you may find that the companies will  
10 or, for that matter, anybody else will take the kind of  
11 easy way out of it to save a few dollars here and  
12 there.

13 So answering your question, there's all  
14 kind of problems with how -- our measurements of wood  
15 and also return to the Crown.

16 MS. SWENARCHUK: Q. I am ready for the  
17 next slide, if you are, Mr. Marek. We are now at slide  
18 55.

19 A. That was the same area. Take a good  
20 look at it. That's growing timber in Vincent Township,  
21 south of Beardmore prior to harvesting.

22 Would you go back, please, one more.

23 Q. We are now at slide 53.

24 A. That's after. Microcosm and  
25 macrocosm, of course, is the slide before that.

1                   You asked me that question Madam  
2   Chairman.

3                   Okay, let's go back. That's what it  
4   looked like a few week before that area was cut.

5                   Q. This is now slide 55.

6                   A. I think there's quite a different;  
7   isn't it. I don't think we can keep our landscape  
8   pristine all the time and in the best shape, but we see  
9   the drastic difference.

10                  Many people will tell me, and this an  
11   argument which obviously goes up, further up while I'm  
12   speaking, that how do you know this site is going to be  
13   like that and again and this rejuvenation and  
14   rehabilitation and nature heals and I don't know about  
15   this. I have listened for 40 years since I arrived  
16   here and I will have a good argument to say: No, it  
17   does not work that way always.

18                  Next one please.

19                  Q. This slide is the detail of the same  
20   stands forest floor before harvesting.

21                  A. That's right. It, again, goes back  
22   to --

23                  Q. This is slide 56.

24                  A. It has this kind of comparison thing.  
25   This is the same site prior to cutting, the forest

1 floor which has been disturbed by cutting practices,  
2 "normal" cutting practices.

3 So we can see this is prior to cutting,  
4 next two months you've got a big pool of water there,  
5 mucked up.

6 Q. Now, Mr. Marek, is it your view that  
7 normal operation or to use another term, large area  
8 clearcutting is part of the problem on this site?

9 A. Yes, very much so. I'm always  
10 puzzled about that term "normal operation" which  
11 appeared and was seen a few years ago. Normal  
12 operation, what is "normal operation" in the forest?

13 As a practising applied forest ecologist  
14 since -- I just cannot grasp what "normal operation"  
15 mean and I will be very anxious if during these  
16 hearings somebody comes up with a proper definition of  
17 "normal operation".

18 Is "normal operation" operation which  
19 create this after this and follow up the marking. Is  
20 that a "normal operation"? Normal to what?

21 Q. Well, Mr. Marek, how would you  
22 suggest these sites should be harvested?

23 A. With least disturbance, consideration  
24 to the biology class. According to there studies, we  
25 are changing total biology of these sites or ecology or



1       whatever you call it, and prevent damages and a system,  
2       harvesting system has to be designed to minimize this.

3                       Now, I know that many are going to say:  
4       He minimize it, we can do what we want, but do we have  
5       to really create this mess that we have seen in the  
6       previous slides? I don't buy it. This is not normal  
7       operation in the forest, forest as I understand it to  
8       be.

9                       Q.   Would you advocate the use of  
10       modified cutting for a site like this?

11                      A.   Of course, the black spruce stands of  
12       this type quality, so modified cutting is absolutely  
13       necessary. I wouldn't appreciate anybody stating that  
14       you can remove all trees from the extremely sensitive  
15       areas where moisture is a great problem, as you see,  
16       Madam Chair.

17                      No, I'm sorry, but here clearcutting has  
18       no place. So "normal operation" to me doesn't make  
19       sense either.

20                      Q.   All right. I'm ready for the next  
21       slide if you are.

22                      A.   Yes.

23                      Q.   We are now at slide 57.

24                      A.   Normal operation. Where is that, by  
25       the way?

1 Q. This is a cut-over in the Clay Belt.

2 A. Beg your pardon?

3 Q. No. 57, a cut-over in the Clay Belt,  
4 Quebec and Ontario Paper.

5 A. Here is Clay Belt, these areas which  
6 has been marked up and disturbed heavily by operation  
7 in the Clay Belt. I suppose the only difference  
8 between this -- and, by the way, this is three years  
9 after cutting, I think. Three years after the cutting  
10 was finished.

11 So, again, you can see the problem is  
12 kind of site restoration or rehabilitation and  
13 rejuvenation. It just does not happen. This tires are  
14 there for many years to come, regardless where they  
15 are.

16 Q. Was this site harvested by full-tree  
17 harvesting, Mr. Marek?

18 A. That's full-tree harvesting. You can  
19 see the branches of the crowns, you can see this has  
20 been probably some kind of access road there. By the  
21 way, it's right on the main highway. I forget now the  
22 name of the highway, south from Moonbeam. There is a  
23 road going down straight south and I drove for about 30  
24 to 40 miles and that was the kind of picture you can  
25 see there.

1 Q. And do you recall the approximate  
2 dimensions of this area?

3 A. Again, I would take a big guess to  
4 say -- try to visualize now in front of me when I stood  
5 there and, as a matter of fact, I have walked it right  
6 down to the standing timber which is being cut rye now,  
7 I think, but you are talking about quite a few hectares  
8 here. Say exactly what, four or five hectares. I  
9 don't know, but the fact is that this site will be  
10 removed out of production for a few years due to the  
11 accumulation, debris and to that very slow  
12 rehabilitation which occurs after.

13 So nature here itself all right, but it  
14 takes a long time for nature to heal this.

15 Next one, please.

16 Q. This is slide 58.

17 A. It's a Vincent Township again. The  
18 reason I had so many pictures because I was interested  
19 in this area for -- well, since I arrived, I suppose,  
20 in these lands and forests in MNR. I know nearly every  
21 square mile of that country and I was expecting it  
22 would have been harvested, but here we are.

23 Here is a location of the road, you see.  
24 So I suppose what they did, all that activities,  
25 logging activities, including of course the skidding

1 and so on was directed towards the road. And may I  
2 fall back on my statement that perhaps to improve the  
3 situation, these locations have to be critically  
4 appraised and preventative measures taken to minimize  
5 the impact, and that is a foreman's job that you don't  
6 have to be graduate forester to do good. It's just  
7 common sense.

8 Here we are going to establish that thing  
9 and put more direction leading to it. If it's going to  
10 be longer, more cumbersome way to get into it, well,  
11 it's going to cost more money and production probably  
12 will be not as high. So there is limitation to it, but  
13 just proves to me that -- well, it proves it's  
14 unnecessary in order to protect the site.

15 Q. Now, we see a moose corridor in this  
16 picture, I believe, Mr. Marek?

17 A. Yes.

18 Q. Do you have some comments on the  
19 placement of that moose corridor?

20 A. I wish I could spend more time on  
21 moose corridors and protection of moose habitat and so  
22 on, but the fact is that many of these so-called moose  
23 corridors are drawn on a map in the offices. Perhaps  
24 they take a helicopter once in a while and check it,  
25 but most of the time that I have seen checking some of



1       these proposed corridors in the timber management  
2       planning process, they are usually drafted on a map  
3       rigidly, string here, you know, just like this, snake  
4       through the country side, and I wonder if that is the  
5       proper way to do that.

6               I think that in order to put some quality  
7       into these "moose motels" - see, that's how we call the  
8       strip, moose motel - there has to be a more realistic  
9       approach from the ground, they have to be proven --  
10      much better laid out in different locations,  
11      considering the wind stability, considering some of  
12      these areas.

13             You know, if they are put on the top of a  
14      hill and, of course, this is open clearcut, "normal  
15      operation", I don't think this moose corridor is going  
16      to last very long. I think moose would be crazy to go  
17      through it because he would break his legs after a year  
18      or two because there is so much blowdown there.

19             You expose the total thing to all kind of  
20      environmental degradation and blowdown is one of them.  
21      So I think this is also a large field for improvement.  
22      How these corridors are being located, what kind of  
23      surroundings they are going to be put into, the  
24      location of it, and perhaps the moose corridor would  
25      have been better served if they left maybe acre or two

1        acres left standing someplace, but this location is  
2        typical of some of these very rigid pattern dictated by  
3        the rules.

4                        Next one, please.

5                        Q.    Slide 59.

6                        A.    This is a slide taken right beside  
7        the previous site.    The reason I took this picture is,  
8        again, the productivity of the area is affected by the  
9        "normal operation".

10                      Madam Chairman, if you look at these -  
11        it's really micro, it's a hundred feet this way and a  
12        hundred feet that way or two hundred - you can see what  
13        area is actually left to grow the trees.    This is all  
14        bare rock, but you may expect there will be a tree  
15        coming up here or some of these pockets.    This is full  
16        of slash and full of debris, logging debris.    This is  
17        full of debris.

18                      The site where the things were slashed  
19        and harvested, that's going to be quite disturbed and  
20        quite probably marked up.    So where are we going to  
21        grow trees here.    These stands were very high valued  
22        stand.    This is about 30 -- over 30 cords per acre  
23        stands.

24                      How are we going to treat this area.  
25        What kind of prescription are you going to have here,

1 Madam Chairman, to regenerate sustained yield this  
2 area.

3 Q. Mr. Marek, you were well aware of the  
4 conditions in this site before the harvest; were you?

5 A. Yes.

6 Q. And what was the forest floor like  
7 before the harvest?

8 A. Well, very similar as you see in the  
9 picture previously where it was green, feather mosses  
10 and heavy duff layer, pocket of mineral soil here and  
11 here distributed between these very shallow rocks and  
12 so on. Very similar to what I had shown to you at the  
13 beginning of the presentation.

14 Now, again, does Ontario contain all  
15 sites like this. The question, of course, I'm going to  
16 be asked for sure is, what kind of percentage do you  
17 consider these shallow, fragile sites represent in the  
18 total boreal forest.

19 I will say in some of the area a pretty  
20 high percentage, in some of the areas it -- I know an  
21 area where nearly all condition is represented right  
22 here in square miles.

23 On the other hand, you have outwashes,  
24 fluvial outwashes, you have glaciers were you have a  
25 deeper site and the problem will not exist as it exists

1 here, represent here. What I'm trying to say is that  
2 this is a Clay belt, this is applicable to certain  
3 areas in the Clay Belt.

4 But say in the northcentral region,  
5 western region, you have all kinds, right up close to  
6 the Albany River, and we did some survey on it, that  
7 large percentage of so-called productive forest which  
8 will be normally harvested or harvested by "normal  
9 operation" represents this conditions.

10 You see, lots of people feel that a  
11 boreal forest is just deep sites of sands and so on.  
12 Well, we should know otherwise if we take a really good  
13 look and we did some of that stuff, we looked at it  
14 because this is a very important thing.

15 Q. This is now slide No. 60.

16 A. Where are you going to plant trees,  
17 what choice do you have here?

18 Now, this is not permanent water level;  
19 this changes. Two, three years later on you come here  
20 and you are going to find sage and grasses, you are  
21 going to find water there, too, especially in this lake  
22 and the nature of these drain -- new drainages, new  
23 seepages, new -- especially some of the grasses, they  
24 take some of the water out there, but still you are  
25 going to have really difficulties to establish the



1 forest here again because what's happened frequently is  
2 that the pioneer species of grasses move in immediately  
3 of these hamocks, and in some of these areas they  
4 eventually dry out, are going to be in completely  
5 different moisture regime.

6 Instead of being flooded, they may be  
7 completely dry. After four or five years, you come and  
8 these sites may be much dryer than they are right now.

9 Perhaps, we should wait, four, five, six,  
10 ten years and then reforest these areas. If you do it  
11 now, immediately after cutting, after there "normal  
12 operations", the trees have a very little chance or any  
13 regeneration, has a very little chance to survive and  
14 make a forest again.

15 Q. Now, Mr. Marek, you've described this  
16 slide as the rise of water table, Long Lac Forest 1980,  
17 in a strip cut. Why do you think this problem happened  
18 and how could it have been prevented?

19 A. Strictly logging problem, strictly  
20 problem of "normal operation". This never should  
21 happen if this area was harvested and wood forwarded in  
22 winter. I think even in winter you have to be very  
23 careful, depending on the depth of the snow.

24 The logging planning, the whole  
25 harvesting similar system is to be proposed in such a

1 way and implemented in such a way that this kind of  
2 total area covered by the skidders and by the  
3 harvesting equipment will be minimized. In other  
4 words, instead of running all over and breaking that,  
5 there should be perhaps one corridor work and minimum  
6 damage can be instituted.

7 If you run all over the country like  
8 this - this is a strip, the whole strip - why do we  
9 strip cut. We are going to have a disturbance like  
10 this.

11 So there are just one of the -- one or  
12 two, three points I suggest to you, that we could use  
13 different equipment, modern equipment, equipment which  
14 will not do this, timing and consideration to the  
15 fragility of these sites in general and there should be  
16 ways and means to do it.

17 Q. This is now slide 61.

18 A. Area clearcut in Clay Belt.  
19 Protection of young growth instituted somehow. I don't  
20 know if it's enough, but it seems to me, it seems to  
21 me -- there is of course, the road, the road where the  
22 timber was processed.

23 I think that -- there are several square  
24 kilometres of these so-called clearcuts, "normal  
25 operation" and as a suggestion, Madam Chair, I would

1 say this never should happen because these should break  
2 upup these cuts, these should do modified cutting and  
3 prevent these large differences in watertable, which  
4 appear immediately after and they last for three,  
5 three, five years.

6 Some people think it doesn't do damage.  
7 I will testify that I think this does not happen, that  
8 damage occurs as a -- over the top layers. It doesn't  
9 probably matter too much if the horizon, one, two,  
10 three metres in the depth below that, and I think that  
11 this "normal operations" should not be part of our  
12 boreal forest.

13 Q. This is now slide 62.

14 A. What can happen frequently, though,  
15 is that when you have a logging operation or a logging  
16 system which concentrate removal of the logs, of the  
17 pulp from the site, taking one strip; in other words,  
18 here is the operation, where the equipment was moved  
19 back and forth taking the wood from the site and then  
20 go back again, pick up the wood and go back down to  
21 there.

22 During these operations, frequently logs  
23 are broken. They have fallen off or they get lost in  
24 the grapple or in the chokers and eventually that  
25 equipment is moving back and forth, back and forth

1 tramping and we see that breakage here.

2 Now, there's all kind of material here.

3 Look here, this is all kind of material which is  
4 merchantable, it has been broken, twisted, scraped,  
5 crashed, accumulated on this area where the logging  
6 equipment is moving back and forth. I have seen this  
7 everywhere when the "shortwood harvesters" were  
8 frequently used. Some companies still using it.

9 This will be awful because you have more  
10 pulp wood, in some cases, on the road or in this  
11 corridor where the harvesting -- or that wood was  
12 extracted from to the main road than you get on the  
13 skid trail, and you can see the damage here.

14 Back, Mr. Martel, to your question: How  
15 are we going to scale that wood. This is merchantable  
16 wood lying there which we owe to the Crown and should  
17 be paid for, but nobody will pick it up because we  
18 haven't got a scale that's in the push and so it just  
19 lies there and eventually it will disappear in sometime  
20 alder growth - in this case alder - so everybody  
21 forgets about it. I don't think this is wise  
22 management, it's very wasteful, too, and occurs quite  
23 frequently.

24 Q. Now, what are the implications of  
25 this site condition for regeneration, to start with,



1       for planting?

2                   A. Well, every tree planner should know  
3       and I think every forester or foreman should know that  
4       to plan a site like this is extremely difficult.

5                   No. 1, when you go with your equipment,  
6       regardless if you have shovels or potaputki or what  
7       kind -- there are some many different equipment. If  
8       you try to force tree into that kind of ground  
9       condition, forest growth condition, I think you're  
10      going to have difficulty to place the roots.

11                   You can put the trees there, but to place  
12      a root system into that of kind of condition is, to me,  
13      very questionable because when you remove this debris  
14      on the top, it's usually dried up, and finally get that  
15      root replacement in in the soil, you will find out that  
16      there is probably material compacted there, usually  
17      mixture with this dry material, mixture with dry  
18      feather mosses, sand peat and that kind of an  
19      environment is not induced to provide good growth for  
20      the seedlings which are put in the ground.

21                   So it's very expensive, it's extremely  
22      cumbersome, it's very tough on the tree planters  
23      because he's got to look for these microsites to put  
24      that tree in. Once he puts it in, it has go to be  
25      tight because, as you know, tree planting manuals

1 always says, trees go to be tight, trees got to be  
2 tight in a certain position and so on.

3 How the heck are you going to implement  
4 this in this ground, these roots in this kind of  
5 condition. I planted trees myself, many, many, I enjoy  
6 that and I think many times I have got so disgusted  
7 because I just couldn't put the tree properly in that  
8 kind of condition.

9 Q. Now, what would be your expectation  
10 of regeneration of this site if it were left untreated  
11 for natural regeneration?

12 A. We have untreated; in other words,  
13 you are talking about natural regeneration without seed  
14 source, without modified cutting; right?

15 Q. Cut and walk away, given the way it  
16 is now.

17 A. If you do that in this case -- this  
18 is large area of alder lowlands, most of it is alder,  
19 there might be odd spruce, natural spruce which came up  
20 from the seed source over there, here and there, but I  
21 think the stocking never would achieve or the quality  
22 of the stands never going to achieve quality wood that  
23 was there before.

24 Q. Why do you expect alder lowlands?

25 A. Because alder is one species which

1 can tolerate these extreme conditions, just like balsam  
2 previously noted, in a certain condition which trees  
3 can tolerate lots of stress. Alder is one of them and  
4 that's not good for your forest industry.

5 So taking all, or capturing - I think  
6 capturing I think is probably -- other species, species  
7 which are of minor values and species which we cannot  
8 utilize as yet will capture these sites and will strive  
9 for a certain number of years, depending on dynamics of  
10 growth on the site, and we have thousands and thousands  
11 of hectares with this kind of neglected sites which is  
12 product of last 40, 50 years logging anywhere.

13 Again, you can go through the whole  
14 boreal forest and just stop anywhere and you can see  
15 this growth, second growth forest made of balsam  
16 together with birch, with poplars, with some spruce  
17 here. You can follow it right through.

18 In some cases, again you are going to  
19 find that perhaps due to the moisture condition and  
20 seed source you may get good regeneration, natural  
21 regen, but never the same as it was before.

22 MADAM CHAIR: Excuse me, Mr. Marek. What  
23 would happen if you burned that site?

24 THE WITNESS: Well, I would like to see a  
25 fire fighter or fire boss who can ignite this.

1                   You see, one of the problems is  
2 immediately after cutting you have a watertable rise.  
3 So whatever fuel you have it's going to be wet for a  
4 long period time. When this fuel eventually sinks in  
5 the forest floor -- you know, it sinks down, the  
6 watertable resides eventually four or five years. I  
7 think you have to put lots of burning tires in that  
8 area to make it burn.

9                   And I think that when we look at this  
10 site -- you know, many of us foresters were puzzling,  
11 if we could, what we would do. If we could, you know.  
12 If you politicians give us dollars, what are we going  
13 to do to put it back, and this was my concern for many,  
14 many years and is still concern now because in some  
15 cases it's a hopeless case.

16                   You cannot do very much with -- with the  
17 know-how we have, with the technology that we have,  
18 with the willingness, morale, philosophy we have our  
19 forest management practices to do, it's a difficult  
20 thing to do. So it's a combination of many factors.

21                   But strictly from a fire point of view,  
22 to get these things out by fire is extremely difficult  
23 thing to do. You may ignite and have the fires burn  
24 here, have the fires burn here, and we tried to burn  
25 this area under certain conditions, but I don't think



1       that would be the tool to do that and I don't think  
2       that success will be there. You will probably burn  
3       some very light material. I'm talking about light  
4       material by very small branches which dried out, but  
5       these logs, you know, they are hard to burn. They are  
6       very hard to burn. So I don't think it would be  
7       practical in the way that it would help the  
8       regeneration process.

9               Now, what I have mentioned, I suppose,  
10       already is that we have two types or two basic types of  
11       forest floor mosses; there is sphnagnum moss and the  
12       pleurozium moss. I mentioned to you even wild fire  
13       treat these two mosses differently. One gets  
14       completely burned off, the other one is just scorched  
15       because it absorbs and has so much moisture in it.

16              Now, if this was a sphagnum site, for  
17       instance, and there was sphagmun -- new build up  
18       sphagnum moss after this disturbance, then you may get  
19       even good regenerations without a fire because sphagnum  
20       moss is a good germination medium. It's not what I  
21       would call the best one because with the changes in the  
22       moisture regime of these sites, which fluctuates, you  
23       may find that certain a period of sphagnum is doing  
24       very well and four or five years later it dries out and  
25       will not support the growth of the spruce as it did in

1 the initial stage when the moisture was there in it.

2 And as far as pleurozium mosses under  
3 these conditions, they are going to have a hell of a  
4 time to move in because pleurozium will not capture the  
5 site as is happened after wild fire when it's burned  
6 off. It's a completely different process.

7 Does that answer your question?

8 MADAM CHAIR: Yes, thank you.

9 MR. MARTEL: What you are saying then is,  
10 before you do anything you better have an appropriate  
11 type of harvesting because you can't replicate  
12 everything that nature did at the beginning?

13 THE WITNESS: Right.

14 MR. MARTEL: And that to resolve the  
15 dilemma, it seems that the cutting that occurs must  
16 coincide more with what nature does than try and deal  
17 with it after the fact.

18 THE WITNESS: Mr. Martel, I couldn't  
19 agree with you more, but let's put it this way.

20 A few days ago I was talking about this  
21 same subject with this quite prominent forest ecologist  
22 who visited me for a few days and we were walking some  
23 of these areas looking at these, and he says: We have  
24 to go the way that nature showed us, perfectly knowing  
25 that we cannot duplicate because how the hell are

1       you -- pardon me, how the heck are you going to put  
2       200,000 seedlings per acre there.

3               My answer to it was, I said: Nature does  
4       it, puts 200 -- you know that picture I showed you,  
5       200,000 little seedlings there germinating. I said:  
6       We can do it, too, and he said: By proper site  
7       preparation, I said: Yes.

8               The fire effect has not only nutritional  
9       effect; in other words, it brings back large number of  
10      trees which can do very well, but we can I think do  
11      this proper site preparation and we don't do that.  
12      This is part of the problem, that we have a still  
13      problem how to do it, have the equipment to do it.

14              We can be guided by nature, that we can  
15      have lots of trees. We can preparad seedbeds on these  
16      sites, modified cutting. Some of the results I have  
17      done for many, many years, some of the results which  
18      were tested 1950 until 1960 in Abitibi lab in Raith,  
19      close to Thunder Bay, which is part of my document  
20      there, part of my information there, you can duplicate.

21              You can have 2000,00 trees germinating,  
22      we can, but here is the problem. We are told by  
23      Industry again, again, again, we don't want it, it's  
24      too many trees. What are we going to do with trees.  
25      We want proper spacing, we want trees so our harvester

1 can go pick up trees, pick up tree, pick up tree, cheap  
2 as possible.

3 Oh, we can -- in my back spruce trials,  
4 and many of this strip cutting which I have initiated  
5 not on two acres, on a mile management experiment,  
6 square mile, we get -- I can get you 150,000 trees per  
7 acre if you have the seed source, if you have leave it  
8 long enough there, as nature sometimes does, you can  
9 do, but everybody say then: What am I going to do with  
10 it, I have to have a spacing done.

11 Mr. Baskerville in his testimony stated  
12 very clearly, Madam Chair, that we have to concentrate  
13 on more natural regeneration, perhaps we can do  
14 juvenile spacing if you have that much regeneration,  
15 juvenile spacing; in other words, make plantations out  
16 of proper spacing and so on, but we can do it.

17 If you modify cuts, have a seed source,  
18 protect your sites, create environment conducive to the  
19 germination establishment of black spruce, Mr. Martel,  
20 I guarantee you you can have the black spruce back, but  
21 you are going to have lots of it, you will have to  
22 invest money to space it, if you wanted space for  
23 equipment you like to have. No problem.

24 MR. MARTEL: We are investing money now.

25 THE WITNESS: No. Well, that's a problem



1 perhaps; isn't it?

2 Okay. You surely have heard from  
3 previous testimony that Industry is after management  
4 schemes which give us so many trees per acre in such a  
5 spacing; in other words, the agriculture approach to  
6 forest management is -- right now they either plant  
7 trees, clearcut it, "normal operations", plant trees  
8 and protect it from competition. That's the scheme.

9 Now, I personally feel that this can be  
10 done on very specific certain areas. You cannot -- you  
11 are always going to have these conditions. You are  
12 going to have back rock, you are going to have organic  
13 material, you are going to have water problem, you are  
14 going to have a problem with competition, especially  
15 when you leave the competing species on a cutting site,  
16 like you have seen the poplar. We are going to have  
17 all kind of problems, all kind of problems and we have  
18 them.

19 So we embark on very expensive and most  
20 expensive and most risky enterprise in forestry, in  
21 silvicultural, planting trees. I have planted trees  
22 since I was a child, I enjoy tree planting on certain  
23 sites, but I cannot see that we can take the boreal  
24 forest, divide it and say we are going to plant trees  
25 and the rest of it we are going to leave to the nature.

1 I think that's probably the most kind of unrealistic  
2 approach to the management in the boreal forest.

3 And I'm not against tree planting, Madam  
4 Chairman, I think we should do lots of tree planting.  
5 Maybe we should do it in a better way, maybe we should  
6 sell it better size. As a matter of fact, we should,  
7 at the beginning, consider many risks involved in tree  
8 planting, which are not recognized by many foresters  
9 because everybody is happy, excited when tree is  
10 growing first, one, two, three years and don't consider  
11 it's going to take probably another 60, 70 years and  
12 lots of risks involved until he can finally say and  
13 say: Okay, I have succeeded.

14 We are talking about short,  
15 predeterministic approach to forestry which I have find  
16 does not work because I have a plantation now which are  
17 over 30 years old. Madam Chair, after 20 years I have  
18 found out they risks with such an enterprise is  
19 tremendous. I will testify later on what kind of shape  
20 my plantations are. Thousands of hectares of black  
21 spruce and white spruce is damaged now so badly by the  
22 spruce budworm. I go there every week and I say: Now  
23 what is coming there, will I lose that whole dam thing,  
24 and there is a good possibility I will.

25 MS. SWENARCHUK: Q. Mr. Marek, let's

1 leave the rest of that discussion for later in your  
2 testimony.

3 A. Okay.

4 MS. SWENARCHUK: We will be explaining  
5 that whole concept fully, Madam Chair, Mr. Martel.

6 It might be appropriate to finish the  
7 next two slides on this subject and then take the break  
8 and then we will move on to another subject area.

9 Q. So if you are ready, Mr. Marek, let's  
10 go to the next slide which is now slide 63, a clearcut  
11 of black spruce, shallow site left for natural  
12 regeneration, Spruce River Forest, 1987.

13 A. Yes. The reason I was talking about  
14 leaving area by itself, leave it to natural  
15 regeneration is a typical like this.

16 As far as I understand, this was a very  
17 rich black spruce stand on Abitibi, very shallow. You  
18 don't see the bedrocks here as yet, but extremely  
19 shallow site. If you put a blade of -- feel the depth,  
20 you are going to find that bedrock is all under this  
21 dessicated feather mosses. This apparently was left  
22 for natural regeneration. "Natural regeneration, leave  
23 it to the nature." No modified cutting, no seed  
24 source. When I was there looking at the site  
25 preparation and I talk to some of these people, they

1 said this is going to be left to nature.

2                   You pointed yourself that these areas  
3 being left to nature was going to happen. Now, what's  
4 going to happen to some of the other species, the  
5 species which can adjust to these conditions, like  
6 feather mosses. They will eventually move in and I  
7 have seen that there were -- I think last year I went  
8 back to it and there were some kind of cherries growing  
9 there, and the natural regeneration of black spruce  
10 will rarely occur because you haven't got a seed  
11 source, you haven't got a condition that you can get  
12 back what you have.

13                   That's what bothers me because I think  
14 there is 40 per cent of the total area cut in Ontario  
15 is left to these kind of conditions. I cannot recall  
16 exactly, Madam Chair, what area, what acres or hectares  
17 are reforested by this, by this, by that. I cannot  
18 keep it in my head because it changes from year to  
19 year, too, and we get usually this information two  
20 years after everything was finished, this report.

21                   But what bothers me here is, where we had  
22 an opportunity in a very dense black spruce stand,  
23 which could have been cut by a modified cut, which  
24 could have been regenerated by proper site preparation,  
25 we leave it to the nature and invest money in tree



1       planting. Here is our growth, the black spruce, we  
2       should put it in black spruce production.

3                   Q. Now, Mr. Marek, the revised slide  
4       list describes -- it says the Spruce River Forest, but  
5       you referred to Abitibi in your testimony. Is it  
6       Abitibi or Spruce River...

7                   A. It's the same. Well, Spruce River is  
8       a forest management agreement in Abitibi licence.

9                   Q. Right.

10                  A. It is on the Spruce River Road far  
11       away from the highway, as a matter of fact, the drive  
12       which loops around that corporation.

13                  So where should we invest our money?  
14       Where should we put taxpayers' money in order to  
15       produce, and I think the present policy is not exactly  
16       the same I'd like to see. This is opportunity to  
17       invest, this is opportunity to put black spruce back.

18                  I think that we should take a good  
19       serious look what kind of system we are going to use,  
20       put it into natural regeneration or put it into the  
21       planting of area which perhaps show higher productivity  
22       or higher prospect of recurrence.

23                  Q. Mr. Marek, can you tell us the  
24       species of the trees that are left at the top of the  
25       photograph?

1                   A. Well, again, that's poplar and birch on  
2   a cut-over. You can see the cut-over. Again, I wish I  
3   never have -- everywhere you go poplar is not fully  
4   utilized. In some cases, effort is being made, but  
5   still seed source is there.

6                   In other words, when you have two  
7   operation or one cutting site, for instance, the  
8   Abitibi cut spruce, and poplar is left standing in  
9   patches or here and there for, say, veneer operation or  
10   for poplar operation in Laidlaw, or whatever, Nipigon.  
11   There always is a problem that you will leave seed  
12   source behind and that shouldn't be left. If you want  
13   to have a jack pine or spruce, manage it that way,  
14   don't leave poplar behind.

15                  Q. We are ready for the next slide then.  
16   This one is now slide 64.

17                  A. Yes. This problem does not occur  
18   only on sites where you have very shallow soils over  
19   bedrock or organic material drainages where you have a  
20   problem, very serious problem with water level.

21                  That can happen on deep site also, and  
22   this picture -- the reason I took it was because there  
23   was big argument about this picture in one of these  
24   programs several years back where Industry is arguing  
25   with, I think, CBC about the problem and they said:

1 Well, our forest, our second growth does not look like  
2 this because this is a cut-over way back from the 50's.  
3 What is it?

4 Q. 1955 according to the list.

5 A. That's right. It was cut in 1955 on  
6 Domtar or St. Lawrence licence there. These is quite a  
7 large area. This is an area of over -- at least ten  
8 square areas miles there which was occupied by very  
9 dense, fire originated stands, mixture of jack pine and  
10 spruce, very deep site, sandy sites and no regeneration  
11 effort was done in 1955 and has been left to the  
12 nature.

13 This picture witnessed that when you  
14 leave something to the nature that nature doesn't heal  
15 always the way we wish it to. You have very sporadic,  
16 very branchy incident of jack pine, very branchy, like  
17 upper trees. This is a spruce tree, you have some  
18 poplar here, but in general terms, when you talk about  
19 stocking and regeneration of the site, it's not very  
20 healthy, it's not very good. So it just seems to me  
21 that when we leave things to the nature it not always  
22 turns the way we'd like to have it.

23 Q. Mr. Marek, I notice this photo was  
24 taken in 1984 but the stand was harvested in the 50's?

25 A. That's right.

1 Q. Let me lead you a second. I take it  
2 this was not a full-tree harvested site?

3 A. No, that was normal operation of  
4 those days, probably horse logging or cutting piles,  
5 eight foot, where all slash was left and probably was  
6 two, three feet deep after the operation moved out.

7 So you have the old type of operation.  
8 You see, the argument asks quite frequently, what does  
9 slash or lots of slash does to the site itself. In the  
10 controversy which is growing now, the removal of the  
11 slash from the site removes some nutrients, which we  
12 will be dealing this later on.

13 Some criteria has been taken, some  
14 criteria had to be done in order to know exactly what  
15 happened on different sites. Many statement has made  
16 that full-tree logging doesn't harm at all sites which  
17 have a good nutritional capacity; in other words, when  
18 you have lots of nutrients in the site you can remove  
19 certain elements of nutrition which is in the needles  
20 and small branches from the site and the site rebound  
21 back.

22 I agree with you. Certain sites and,  
23 unfortunately, not majority of them, it's minority of  
24 sites in northern Ontario of the boreal forest can  
25 bounce back regardless of what you do to it because



1 they are nutritionally there, it's in the site and the  
2 vegetation rebounds very quickly and that means  
3 recycling of nutrients and probably damage is very  
4 minimum.

5 On the other hand, when you have a very  
6 poor site, where you have sites that are fragile,  
7 unstable, it doesn't have to be bedrock, these sites  
8 may lose some of it and it's going to take a longer  
9 time rebound back.

10 Q. Now, just clarify. You said some  
11 sites can bounce back regardless of what you do to it?

12 A. Yeah.

13 Q. Are you suggesting that those sites  
14 in which we have seen these practices earlier in the  
15 morning will also bounce back?

16 A. No, they don't bounce back that  
17 quickly obviously.

18 Q. In that phrase in reference to the  
19 nutritional question?

20 A. When we talk about -- nutrition is  
21 one aspect. When you talk of growth of primary species  
22 and site occupancy it's also different.

23 MS. SWENARCHUK: We will be moving on to  
24 a new subject area with the slides, Madam Chair, so  
25 perhaps this would be an appropriate time to take the

1 break.

2 MADAM CHAIR: We will take our morning  
3 break now.

4 MS. SWENARCHUK: Thank you.

5 ---Recess taken at 10:20 a.m.

6 ---On resuming at 10:45 a.m.

7 MADAM CHAIR: Please be seated.

8 THE WITNESS: Where we at, Madam?

9 MS. SWENARCHUK: Q. We are beginning now  
10 the section you have entitled Effective Harvesting on  
11 Water Table and Forest Floor.

12 We will begin with the next slide, Mr.  
13 Huff, which is slide 65 and you have described this as  
14 damaged by equipment, Lake Nipigon Forest, 1985.

15 A. Madam Chair, I will be dealing with  
16 this subject as outlined by counsel there, deal with  
17 the problem of water table.

18 The problem of water table has been  
19 discussed between foresters, forest ecologists,  
20 managers in general for hundreds of years. These  
21 discussions started in Europe many times a long time  
22 ago and the latest finding after this experience, the  
23 latest findings are that the effect of water table is  
24 extremely important on the site itself.

25 We have great diversities of sites in the

1 boreal forest. The sites range from very, very, dry,  
2 extremely dry to very wet which means, of course, that  
3 on very dry sites there is a lack of moisture and on  
4 wet sites you have surpluses of moisture. These  
5 conditions may be aggravated or changed severely by the  
6 disturbance, regardless of what disturbance, natural  
7 disturbance, wild fire, blowdown or man-made  
8 disturbance as harvesting, clearcutting.

9 Here, again, between these things are  
10 many nuances, many, many degrees of effects. I will be  
11 dealing with effects on sites which are extreme which I  
12 think are very much represented, frequently represented  
13 in the boreal forest. While the boreal forest  
14 fortunately have some areas in which the water problem  
15 is not a problem and that is, for instance, on deep  
16 sites, sands, glacial, fluvial deposits in some case.  
17 This impact of water is very important and sometimes  
18 damaging to the sites on sites which I will be  
19 presenting.

20 The water table, the water surpluses and  
21 deficit are not stable. In other words, like Dr.  
22 Baskerville stated, everything is flux, it changes.  
23 But it's well-known that on many sites in the boreal  
24 forest, due to its climate, due to its geology which  
25 may differ completely from B.C., from British Columbia

1 to Europe and Scandinavia and Alabama and so on.

2                   These sites, after full-tree harvesting  
3 and large clearcutting, may change drastically its  
4 character due to the impact of water table. I have  
5 mentioned that water table rise may be due to the  
6 improper drainage, obstruction in drainage, it may be  
7 causing by removal of standing timber, it may be also  
8 affected by surpluses by a natural event like heavy  
9 flooding by rain or heavy drought, but we all agree on  
10 one thing, when you remove the forest, forest cover,  
11 that you drastically change the water evaporation and  
12 transpiration processes. You are removing pump, and  
13 that has been mentioned yesterday.

14                   Many foresters feel very strongly that by  
15 removing these trees, by removing the pump, many sites  
16 or a majority of the sites will balance itself, more  
17 deficit or surpluses, by new growth and this is true to  
18 some degree, again, to some sites. Again, we've got to  
19 be very, very specific.

20                   When it just happened that you have the  
21 climatic condition inducing lots of water in the  
22 system with heavy rain, say, you have heavy rain during  
23 the summer or fall, or when you have a severe drought  
24 in combination with tree removal, we are exaggerating  
25 or there is a double impact; in other words, it's a



1 profound kind of effect.

2 Many studies all over the world has been  
3 done on water flow in the forest. As I mentioned,  
4 Europe has been researching this for many years. The  
5 latest -- I will say latest research to my knowledge  
6 concentrates mostly on one aspect and that is, what  
7 does water deficit or surpluses do to the surface of  
8 the sites. As you know, soil is described as organic  
9 matter, forest use, and of course below you have  
10 different stratas and physical material which is clay  
11 or sandy material. The effect of water may affect the  
12 processes percolating the water; in other words,  
13 movement of water from the top down, gravity, and it  
14 may affect to some degree, like modeling and size of  
15 water being accumulated on certain strata. It may show  
16 as an accumulation of certain nutrients, surpluses as  
17 barriers in the soil.

18 We all probably know about the European  
19 problem of accumulation of calcium in alkaline soils  
20 where barriers due to the increasing water release of  
21 calcium which, in certain strata of the soils, gets  
22 damaged by forcing water up than forces the...

23 Since we progressed in our knowledge of  
24 the forest floor itself, that green moss layer and that  
25 stuff on the top here, Madam Chair, we realize that the

1 damages by surpluses and deficits can be severe. Not  
2 perhaps in the first stage of water presence, but there  
3 in impact on the quality of strata itself. The impact  
4 of living material, which is made of many living  
5 things, many in square cubic inches, what we are  
6 initiating are chemical and important chemical  
7 processes affecting the site productivity.

8 I told you already and I emphasized  
9 already that most of the nitrogen which is being  
10 produced in the compounds which is accessible to the  
11 root system; in other words, to feeders. Remember I  
12 was talking about feeders, the roots which suck out the  
13 moisture, get the nutrients, provide it to the whole  
14 tree system, they are being affected by damaging these  
15 living processes and the living things in the humus  
16 strata, thus causing degradation or production of  
17 energy to the tree system itself.

18 In a picture I had shown right at the  
19 beginning, the living humus layer, green at the top and  
20 then darker, partly decomposed and fully decomposed  
21 layers, they are all environment for the mineralization  
22 or immobilization of the nitrogen.

23 Now, I don't want to be too technical  
24 here and go into the dynamics of mineralization, but in  
25 general what I'm talking about is this, that most of

1 the nitrogen -- and we know lots about nitrogen, but we  
2 still don't know where nitrogen actually comes from,  
3 how it's built into the total system.

4 I mentioned yesterday that 60 per cent  
5 probably which goes into the ecosystem is unknown where  
6 it comes from. Maybe it's coming from some bacteria  
7 floating in our systems, and I'm talking about the  
8 total growth, it may be -- some suggestion recently was  
9 made that it comes from the poorer cuts; in other  
10 words, the poorer region where the nitrogen is  
11 transferred and supplied, the total growth is nitrogen.

12 Anyway, we still don't know very much,  
13 but we know that organic nitrogen has to be converted  
14 into the mineralized nitrogen in order to be accessible  
15 to the plants and trees regardless where they go, and  
16 here comes the problem.

17 In many textbooks and in many minds of  
18 foresters and, for that matter, the public, we feel  
19 that earth or the strata of -- when the tree grows,  
20 that the physical strata and the total soil system is  
21 very resilient; in other words, you can do a little bit  
22 of damage to it and you can do lots of damage,  
23 depending on the disturbance, but in general it's very,  
24 very resilient and the damages by the water tables or  
25 processes or deficits are minimum. I understand that

1 was explained to you by previous experts.

2 Being involved in forest applied  
3 ecology - and this, I think, I studied very diligent  
4 for many years - I observed these damages of surpluses  
5 and deficits for many, many years and what always hit  
6 me is or what always kind of surprised me is that it's  
7 so site specific that in many sites like here, this  
8 site, after disturbance you have such a strong impact  
9 that everything changes, and if you start to induce  
10 plants in that kind of environment that you usually  
11 fail, one fails, because a tree cannot grow under these  
12 conditions so heavily disturbed by the disturbance.

13 So it very much depends what we do to the  
14 site and how the water impacts. I'm going to show  
15 later on slides when you plant trees, and I said it  
16 before, when you plant trees in such a disturbed  
17 condition you have very little success the first few  
18 years to get decent growth of good survival of plants.

19 On the other conditions, and experiments  
20 I have done, when you leave this site for five, six,  
21 even longer and start planting trees on this, they may  
22 survive in some instances. There are instances where  
23 you plant them ten, even longer, and they still cannot  
24 survive; in other words, the effect and rehabilitation  
25 and the resiliency of sites are different from site to



1 site.

2 Mineralized nitrogen, which is obviously  
3 not available through the deaths of the biota and  
4 mycorrhizae, which are -- may affect the mineralization  
5 of nitrogen is not present here. So there's no point  
6 to plant trees until you get into that situation where  
7 it can happen; in other words, the tree could adapt to  
8 this environment to get this mineralized nitrogen, but  
9 there is other problems, that the site itself changes  
10 physically and I call it the vertical disturbance of  
11 the forest floor.

12 Next slide, please.

13 Q. We are now talking about slide No.  
14 66. First of all, Mr. Marek--

15 A. Yes, ma'am.

16 Q. --this slide is a microsite of the  
17 previous slide; is it not?

18 A. This is a microsite, yes. You are  
19 talking about a microsite.

20 Okay. Say that disturbance which I have  
21 shown in the previous slides will be examined at the  
22 micro level. Immediately after cutting here, after  
23 removal of the trees, the water rises, the flooding  
24 occurs, the oxygen is not -- the quality of this water  
25 even deteriorates because it starts decomposing to the

1 heat, to the temperature and so on, and when you plant  
2 trees - and there is one planted here and I think there  
3 is another one over there - haven't got a chance to  
4 survive.

5 So the question is why we do it and that  
6 should be answered perhaps later on. Why do we do  
7 this. We know that tree planting cannot have any  
8 success because the water level rises. Lack of oxygen,  
9 lack of mineralized nitrogen, it's a nitrogen fixation  
10 doesn't happen, tree goes dead.

11 Next one, please.

12 Q. Just a couple of questions, Mr.  
13 Marek. I wonder if you could help the Board with the  
14 history of this site. Do you recall approximately how  
15 long after the harvest this picture was taken?

16 A. This is second year after harvesting.  
17 The low lying areas are still flooded, by stagnant  
18 water in this case, the hemlocks were planted here, the  
19 secondary vegetation consisting of sedges and grasses  
20 start moving in capturing the site and the tree dies;  
21 in other words, the opportunities of capturing a site  
22 is strictly -- is the adaptation to condition. Sedges  
23 and grasses can adapt. They can move in and occupy the  
24 site in one, two, three four years, but spruce cannot.

25 Q. Now, we don't have on the slide list

1       when this picture was taken. Do you recall?

2                   A. It's a last year picture, I think.

3                   Q. 1989?

4                   A. 1989, I think.

5                   Q. And do you have a prediction or  
6 approximately how long you think this water problem  
7 will look like this? How long will it take to change  
8 the --

9                   A. It depends of the site, but it  
10 depends on the depth of the material. It depends on  
11 factors as how quickly this vegetation get other  
12 vegetation moving, allowed to move and capture of the  
13 site; it depends to some degree on the climatic  
14 condition; it depends on capability of this water being  
15 replaced by other medium and I will deal with it in  
16 next slide, because this water doesn't stay  
17 permanently. As a matter fact, matter of months  
18 sometimes you can see establishment of sphagnum mosses  
19 right on the surface of these pools.

20                   Can I have the next slide, please, now.

21                   Q. One more question. This is a more  
22 general question, but I think we might as well deal  
23 with it now. Is this problem in any way identified or  
24 dealt with if the forest ecosystem classifications?

25                   A. No.

1 Q. And what is your view of that gap?

2 A. Counsel, do you want to put this into  
3 this category right now to discuss or should we perhaps  
4 leave it until later on, because I agree this problem  
5 of plant succession and site condition after  
6 disturbance - in this case clearcutting - is not dealt  
7 with in FEC, forest ecosystem classification.

8 I don't know why, because many throughout  
9 the world are following this by saying something like  
10 this: Okay. Group such and such - and you know FEC -  
11 group such and such and such, under condition of say  
12 mature spruce timber, certain sites, was tested in  
13 mature diligent stands. It was not tested under these  
14 conditions.

15 That's one of the problems I have with  
16 many foresters because a forester goes like this: He  
17 takes the FEC, the booklet's you know, look at the  
18 condition floristically speaking; in other words, by  
19 certain species of plants, classify it in certain group  
20 and say: Okay, these are the conditions which are  
21 there now.

22 All of a sudden it is being cut and  
23 conditions are completely different. Not that the  
24 physical strata of soil changed, but the surface is  
25 changed where trees depends on it. And foresters quite



1 frequently, foresters who go in the bush, he goes in  
2 the forest, all of a sudden find these conditions and  
3 say: Okay, gosh, that's a completely different  
4 floristic indication.

5 See, FEC is based on floristic  
6 description of the site by its plants and, of course,  
7 the profile of mineral soil. Together they should give  
8 a certain indication about productivity and so on, but  
9 there is no design of saying: Look, fellows, this all  
10 changed, the whole ballgame changes after you induce  
11 these conditions.

12 The reason I brought this element here  
13 and the reason I'm talking to you today is the  
14 importance of these changes which are introduced by  
15 disturbance, to some degree by natural disturbance such  
16 as fire, but there the ecosystem are much more resilient  
17 to boost it up for ver specific reasons, as I mentioned  
18 already.

19 All conditions like this, you cannot do  
20 very much about it. Trees are gone, new species occupy  
21 the environment of the forest floor and they are  
22 putting spruce in. Why? Because we don't know about  
23 these changes, obviously. Just initiating processes  
24 which are somewhat different as were under natural  
25 condition in a virgin forest.

1 Is that okay?

2 Q. The next slide then will be slide 67.

3 This is described as the --

4 A. Okay. I would like you to pay  
5 attention to this condition because it's very  
6 important.

7 Do you remember the previous slide, Madam  
8 Chair. I went there a year after and I had found this  
9 condition. What's happen is this, the sphnagnum, which  
10 is a moss species, have a capability of occupying even  
11 these puddles or the water surface. You can see how it  
12 comes up, the sphagmun moss. There are many sphagnum  
13 moss, this is one of them which appears frequently.

14 Under these disturbed conditions, which  
15 we saw in the previous picture, that sphagnum will  
16 design that site itself, the specific site, will start  
17 rehabilitating; in other words, is bringing into  
18 production the old system, being disturbed so heavily.  
19 Here is a sphagnum and, of course, there are the sedges  
20 and grasses on the site. (indicating)

21 This is how nature heals, but it didn't  
22 heal it for black spruce as yet; we are not at that  
23 stage. So that's a first indication a site is fighting  
24 back, coming back.

25 Next one, please.

1 Q. Now, just a few more questions here.

2 Now, here we see the sphagnum established with the  
3 water level being high. What do you expect will happen  
4 to the moss when the water level falls?

5 A. Okay. This is not a permanent  
6 condition, this is a condition which may persist for a  
7 year, two, three, four, depending again, very site  
8 specific, but it doesn't last.

9 The water level moves downwards,  
10 sometimes by just percolating through, sometimes  
11 disappearing due to the evapotranspiration which is  
12 again being pumped, these little bumps start, and water  
13 starts doing down.

14 Next one, please.

15 Q. My question was, what is likely to  
16 happen to the sphagnum moss when the water goes down?

17 A. The environment for the specific  
18 specific sphagnum will change; in other words, the water  
19 goes down, will start disappearing and immediately this  
20 affects the sphagnum moss. So what's happened is, even  
21 that sphagnum moss may dry out, goes to the bottom of  
22 the pool or the rock or whatever it is and change  
23 completely its productivity.

24 In other words, it's not able to live  
25 from that pool of water, that supply of nitrogen, and

1 it may be found at the bottom of the rock dessicating  
2 and if in the meantime, say, one, two, three years the  
3 mosses disappear, of course the spruces seedlings,  
4 although they may get established in this, disappear  
5 with it.

6 Q. Okay. The next slide is slide 68,  
7 described as a similar site ten years after cutting in  
8 the Auden management unit, 1987.

9 A. Right. Madam Chair, I have described  
10 to you kind of temporary arrangements which Baskerville  
11 talks about, the timing, the succession of different  
12 stages.

13 This area was very similar, heavily  
14 rutted, surfaces of water were there for one, two,  
15 three years and persisted for quite a few years. So,  
16 in other words, depending on a site, depending on  
17 conditions, such a very damaging influence of the  
18 vegetation which moved in may persist for many years,  
19 thus preventing establishment of any spruce.

20 This is a site which I have taken a  
21 picture many years ago. When I go back now, there are  
22 certain changes, but it seems to me that depending on  
23 the site conditions, the situation may last few years,  
24 shorter period of time, may last for all. If it lasts  
25 very long, of course, the hope for regeneration is very



1 slim.

2 Next one, please.

3 Q. Excuse me, do you recall  
4 approximately when this picture was taken, Mr. Marek?

5 A. This cut-over was way back in 50's  
6 and I followed this area. That's a pretty old picture.  
7 What date did I put on? I forgot now.

8 Q. This slide was taken in 1987; is that  
9 correct?

10 A. No, not this one. I just can't  
11 recall. I have so many of these documents and these  
12 slides that sometimes I get confused. What number is  
13 that?

14 Q. 68, and at the top of page 5 of the  
15 slide list it indicates that the slide was taken in  
16 1987.

17 A. That's correct. This is after --  
18 this was taken -- this operation took place way back in  
19 60's and then again I took a picture in 1987, that's  
20 correct. May I have a copy? I lost it someplace.

21 MR. HUFF: It's right here.

22 THE WITNESS: So what slide is this?

23 MS. SWENARCHUK: Q. We are finished then  
24 with 68 and let's move on to slide No. 69.

25 A. 69. It's condition of similar site

1 35 years after cutting, camp 93, area Lake Nipigon  
2 Forest.

3 This is, again, sequence of time and  
4 develop the changes of a site. Eventually, many of  
5 these sites which I have described previously, this  
6 rutting and this damage which water did, I don't see  
7 why not in this kind of condition -- this site was  
8 taken just last year, last spring.

9 I walked in the area there which I have  
10 walked for many years and I took picture and you can  
11 see the drastic difference here. There was lots of  
12 sedges and grasses, there was no spruce of course, what  
13 was original one, and eventually a thicket of alder and  
14 species, deciduous species, brush, which get  
15 established after so many years.

16 So we're talking about the result of  
17 problem or damage to the site after long time and it's  
18 probably going to last for many years yet, and just  
19 visualizing what could happen, say, after 50 or 60  
20 years, that eventually spruce, if there is a seed  
21 source, may move in as the understorey and eventually  
22 may come up and rise after long period of time to  
23 produce trees.

24 This is quite possible and has been  
25 documented in some write-ups, some reports that,

1 indeed, after many years the spruce will not be  
2 developed and may come through if the seed source is  
3 available, and that's usually happens from the seed  
4 source which comes far away. It's extremely slow  
5 process.

6 So these pictures are showing now that it  
7 may take, in some cases, few years, in some other cases  
8 it takes a long time until these successional stages  
9 and the invasion of different plants occurs. So it's a  
10 very dynamic long-term process.

11 MADAM CHAIR: In the last few slides,  
12 these sites were not planted?

13 THE WITNESS: No, they were not planted.  
14 There is a slide which I have planted there. The slide  
15 where you this plantation on a hill. It will probably  
16 come later on. No, we didn't go through it yet.

17 MS. SWENARCHUK: Q. Slide No. 66  
18 indicated --

19 A. No, this was planted. There are  
20 spruce trees right there and some over there. This has  
21 been planted. This is why I have pointed out to you,  
22 Madam Chair, that these trees died.

23 MADAM CHAIR: Yes. I wasn't sure if that  
24 was a planted seedling or a natural.

25 THE WITNESS: Yes, that was a planted

1 seedling.

2 This is final result of this long-term  
3 site resiliency and the species succession in some of  
4 this very disturbed condition. That site was just a  
5 normal harvesting at that time, eight foot -- I think  
6 eight foot boles, strip cutting, and it didn't come  
7 back yet. Also, the other thing, away from that  
8 drainage, some species regeneration occur, majority  
9 would be balsam fir.

10 Anymore questions, please.

11 Q. No. This is now slide 70.

12 A. Under many other conditions where we  
13 have a disturbance going through, we -- of course, ever  
14 present sedges and grasses move in as the ones which  
15 can get established, can take the stress of this  
16 disturbance, but, again, other trees build up.

17 There is a little seedling, I think it's  
18 a jack pine seedling, which shouldn't be planted under  
19 this condition anyway. It should have been probably  
20 left up to some other upland. In this kind of much up  
21 areas where organic materials are heavily disturbed,  
22 the tree hasn't got a chance and dies off.

23 This is one of the dilemmas I feel should  
24 be mentioned here, that in many parts of the boreal  
25 forest, due to this large cutting, large scarification,



1 these sites which should be probably left untouched and  
2 not disturbed by logging - as a matter of fact, not  
3 planted period because the tree will not survive - are  
4 being included in the regeneration program.

5 I have mentioned quite frequently the  
6 very successful plantations up to now, up to now  
7 please, are doing fairly well on uplands, but once you  
8 get into the lowlands where you these surpluses of  
9 water, where you have this problem of mucking, the  
10 plantations usually show very poor results, if not  
11 failure. That's everywhere right across the board.

12 So when I say this is a Domtar, I'm not  
13 being facetious about that that it does not happen all  
14 over the country, it does all over the place. As a  
15 matter of fact, the better plantations which are  
16 usually shown to you in the audits and so are in  
17 uplands, where lowlands are not as successful.

18 Q. We will move to the next slide now  
19 which is slide 71.

20 A. That is disturbed organic sites on  
21 Spruce River FMA. The uplands were here and lowlands  
22 down below and what I have found - this was taken in  
23 1987 - that again you can see the distinctive,  
24 distinctive plant succession. The holes, the ruts, the  
25 deep trenches are not occupied by plants as yet. Here

1 at the hemlocks, at the top, there is some activity  
2 indicating that some nitrogen must be available and  
3 only four species which can or are tolerant enough,  
4 tolerant enough to survive.

5 Q. Now, Mr. Marek, with relation to the  
6 water table, what happens to a trench like that in the  
7 spring time?

8 A. Oh, that's a crucial time. Spring  
9 time is a crucial time, of course, because snow melts.  
10 You have large surpluses environmentally into the  
11 additional problem of evapotranspiration removal in  
12 trees. It's an additional problem.

13 I mentioned, Madam Chair, that this is  
14 really affected some time by the environmental  
15 condition. When we have a heavy, heavy wet year,  
16 there's lots of rain this year, of course that  
17 exaggerates the condition in this situation. So there  
18 is environmental input, obviously, but that is  
19 flexible, that happens every once in a while.

20 Q. Now, if through planting or some  
21 regeneration option trees become established here,  
22 would you expect to receive or to be obtain a stand  
23 with good stocking on this site?

24 A. Depending on time, depending on many  
25 factors. There is no straight answer to to this.

1                   One answer I can give you, ma'am, is  
2           this, that it's going to take a long time. Depending  
3           on many factors it may change from site to site. There  
4           is nothing a hundred per cent in this case because it  
5           all depends, all depends on the dynamics of the site  
6           and the environment itself.

7                   It depends very heavily on chemical  
8           processes, nitrogen mineralization, accessibility to  
9           mineralized nitrogen, CN, carbon nitrogen relationship  
10          which is very important, and I enclose in my testimony  
11          later on some of the research we have done under my  
12          supervision because I always was very puzzled by the  
13          relationship.

14                   Okay, you've got enough nitrogen, you've  
15          got all kind of nitrogen in a site and all of a sudden  
16          realize the trees are still not growing. Why doesn't  
17          it grow? Well, because the ratio between carbon  
18          production and nitrogen is out of whack, is out of the  
19          normal thing. It goes up and down. You have more  
20          nitrogen, you less carbon. You have more carbon, less  
21          nitrogen. So it depends on very, very complicated  
22          chemical and ecological processes until you can say:  
23          Okay, it works, it doesn't work.

24                   May I point out one thing which it's  
25          coming more and more clearer in research in applied

1 forest ecology and impact of nutrient cycling on  
2 successful plantation. As long as we, as man, will be  
3 unable to measure energy input, not calcium or not  
4 boron or not phosphorus, as long as we cannot really  
5 measure the energy input and output in our ecosystem,  
6 and that means earth by itself, too, we will be lost in  
7 this complicated relationship between elements which  
8 are grown and work together in order to produce this  
9 energy.

10 In last year's Congress on forest  
11 ecology, and I have a transcript from it, people who  
12 are at the top know-how say this, let's concentrate to  
13 measure energy, then we have our answer to all things.  
14 So it's a very complex process, Madam Chair, and I  
15 think what we know through the analyses of relationship  
16 between nutrients which we can measure to some degree,  
17 we still cannot cope with total energy going in and out  
18 of the system.

19 Q. Can we have the next slide now which  
20 is slide 72.

21 A. This is a horror story picture and I  
22 am standing there, taken in 1987 in the Clay Belt.  
23 Fresh cut-over areas in spring, the logging has been  
24 done sometimes in March and April and then, of course,  
25 the melt came and then the site is flooded.



1                   Now, one of the interesting things is  
2           that they were ready to plant this area. I was there  
3           some time in June I think and they were ready to plant  
4           it. I don't know if it was company or if it was  
5           Ministry, I forget now, but the fact is, how in the  
6           heck are you going to plant trees in that kind of  
7           condition, and this is an extreme condition of flooding  
8           which may be accentuated by road which was built here.  
9           It goes something like this. I had to walk into the  
10          tree planting area from the road here which acts as a  
11          dam.

12                   Q. Acts as a...?

13                   A. As a dam. As a dam, the water  
14          outputs. So everything was flooded. Good luck for  
15          tree planting I say.

16                   Any questions?

17                   Q. Now, do you have any idea what kind  
18          of equipment was used in the logging there?

19                   A. I was told by some people working on  
20          the side of the road there, I was told that this site  
21          was prepared by flotation, some kind of flotation  
22          equipment.

23                   I don't think they are skidders. I  
24          think it was some kind of track wheel they were using  
25          there. I'm not quite sure. I was told, apparently, it

1 was done by tracks which should have taken care of  
2 these conditions.

3 Q. The next slide is slide 73.

4 A. Particularly in the Clay Belt after a  
5 few years. I think -- what slide is this?

6 Q. This is slide 73, similar site --

7 A. Similar site close by several years  
8 after harvesting, sign of chemical tending visible.  
9 Hanna Township, 1987.

10 Yes, this was very interesting because I  
11 could compare these changes. As an as etiologist, I  
12 always compare things. I always go and say: Okay,  
13 what was it yesterday, what is it today, what is it  
14 going to be probably tomorrow. So here I found a very  
15 similar site. Again, deep organic site which must have  
16 natural regeneration after cutting, somehow natural  
17 regeneration of spruce on these sites, both visible,  
18 because I don't know if MNR or company decided to  
19 release that natural regeneration of black spruce due  
20 to the alder competition. This is alder brush. You  
21 can see the effect of aerial spraying by the death of  
22 these alder branches there. (indicating)

23 So they did it and it was not a hundred  
24 per cent successful because, obviously, there is still  
25 lots of stuff living there, but you start really

1 questioning here the effectiveness of -- or the  
2 prescription done by a forester who thinks: Well, I do  
3 not restock black spruce because it's there as a kind  
4 of understory, small of course, and will not give it a  
5 chance to take over the site.

6 Quite frequently, Madam Chair, what  
7 happens here is just opposite happens, that we changed  
8 the balance of the site, as far as floristic species  
9 concerned; in other words, the grasses and sedges, and  
10 by boosting the grass -- this competition, we actually  
11 do disservice to the black spruce which we are trying  
12 to release. We kill alder because chemical spraying  
13 usually hits the top elevation of the trees, so they  
14 get damaged. The understory, which is represented by  
15 sedges and grasses, they boost because more life of  
16 course gets to these plants. So they start really  
17 benefitting from this treatment.

18 Next one, please.

19 Q. The next slide then will be slide 74.

20 A. Similar site eight years after  
21 harvesting happened. Right beside there were these  
22 conditions. There was no chemical tending done here,  
23 obviously, because I didn't see any result of it or  
24 partial mortality and so on, and indeed the site, as  
25 you see, is completely occupied by the competition or

1 by the plants which we don't wish to have.

2 These kinds of conditions, you know, is  
3 very common in these older cut-overs in lowlands where  
4 no treatment or no planting has been done. Just site  
5 is completely taken over by the species which invaded  
6 these conditions.

7 Next one, please.

8 Q. Now, just talking for a moment of the  
9 site history of this site. You said this was taken  
10 eight years after harvesting?

11 A. Yes, that's correct.

12 Q. What was the composition of the stand  
13 that was harvested?

14 A. This was black spruce stand. You can  
15 see in the background some of these unmerchantable  
16 trees or some of the stands which have a low quality, I  
17 suppose, small diameter that's been bypassed, which is  
18 nothing wrong with it. It will probably have some  
19 input eventually later on, this adjacent area, by seed  
20 supplies. It's going to be a slow process, but this is  
21 all right, to leave these trees if you don't use it.  
22 If you don't harvest it, leave it there for a seed  
23 source.

24 Q. Now, why in your view is the site now  
25 dominated by this growth?



1                   A. The site is dominated for very simple  
2 reason that the stand was clearcut obviously, the trees  
3 were fully removed from the site and growth of other  
4 species moved in; in other words, the conditions were  
5 extremely good for the competition to move in, so they  
6 occupy the site now.

7                   Q. If I could just have one moment,  
8 please. The next two slides have to do with timber  
9 utilization. If we could move then to the next slide  
10 which is slide 75.

11                  A. Undersized black spruce fiber left on  
12 slasher site, Long Lac Forest, 1990.

13                  You have the details over here, Long Lac,  
14 and I don't think these should be tolerated. I think  
15 that this is a good example that lots of fiber is just  
16 being wasted, underdsized wood, undersized wood, we  
17 cannot take it to the mill. We dumped it along the  
18 road there and leave it there.

19                  Now, there is some merchantible timber.  
20 I did some measurement here and I would classify many  
21 of these things as merchantable logs because they are  
22 four feet long and they have a certain diameter, but  
23 certainly this is, again, not unique. I mean, the  
24 whole area is just full of these conditions along the  
25 road.

1 I met two Americans, they were driving  
2 the same road, they nearly got stuck there and they  
3 were asking me if I had something to do forestry. I  
4 said: Yes, I'm a consultant, and the lady says: God,  
5 oh God, look at this waste. So it's just a little  
6 remark. I think this is unnecessary.

7 Next one, please.

8 Q. Slide 76.

9 A. Well, this is a commuter operation.  
10 See, what's happened to these sites, these slasher  
11 sites or this debris site. The company will usually  
12 leave it for a year or two and then MNR fire crew come  
13 in and start burning it, and I understand now some  
14 companies doing the same thing. They just go in and  
15 set it up if it burns properly.

16 Now, this is a good example that you  
17 can't burn very well, could you, because the fire  
18 obviously didn't consume the old material and only  
19 partially burned the thing. There is lots of material  
20 there.

21 Now, these are planted trees. Jack pine  
22 was planted immediately with what was burned off from  
23 the site, going in and putting trees, but this burning  
24 of these debris sites is an interesting thing because  
25 once you really start burning them you see what's in it

1 and quite often what's happening -- there is lots of  
2 merchantable material burned because they just  
3 bulldozed it in and scraped the right-of-ways and  
4 there's all kind of bigger material underneath. So  
5 it's not only tops, there's lots of other stuff  
6 involved, too, and I think it's time we look at these  
7 problems and start utilizing.

8 MR. MARTEL: Does this occur, though,  
9 because there is inadequate staff to be out in the  
10 field, to know what's going on specifically?

11 THE WITNESS: That's part of the problem,  
12 Mr. Martel. The supervision, the impact of proper  
13 inspections, documentation, and so it is a very  
14 important part.

15 I think it's necessary in our society in  
16 general. We still are a young country and have to be  
17 supervised, but I don't think that's the total problem.  
18 I think part of this problem is a company problem  
19 saying: We cannot use that small wood. It's expensive  
20 stuff to take down to the mill, doesn't fit in our  
21 technology of storing it and -- see, one thing which we  
22 should realize and perhaps I should mention it here  
23 now, because the economics of silvicultural and  
24 utilization is so darn important to emphasize.

25 When you transport small wood from the

1 far away areas, you know what kind of load of wood you  
2 are going to have. It's going to be fairly expensive  
3 wood concerning the value, because the bigger you have  
4 wood, the better return you get on a wood production.  
5 Bigger trees always provide you better value. Smaller  
6 trees, because lots of air in it, and that applies for  
7 transportation.

8 If you have logs of this size and put  
9 them on the road, transport them down to Spruce Falls  
10 or the Red Rock, you weigh it, you have a set value.  
11 If you weigh the small timber, you are also going to  
12 get different weight because you have more bark there  
13 and bark is lighter obviously, right.

14 So you have this problem where everybody  
15 wants to get big wood. Big wood is the cheapest wood,  
16 small wood is expensive wood. It takes longer to  
17 produce, you have to cut it in the system where you  
18 have all kind of movements of equipment. So you have  
19 these costs. The answer to it is that you will not  
20 produce that wood or chips from this, you will not  
21 produce it as it is, you have to convert it into chips,  
22 something. Put it in the vans and take it down to the  
23 mill because otherwise these logs, they can be very  
24 expensive.

25 Next one, please.



1 MS. SWENARCHUK: Q. Just one more  
2 question. Do you know what the species composition was  
3 on this site before harvest?

4 A. Yes, this was all black spruce or  
5 majority was black spruce and there is a sign of jack  
6 pine right here, so there was some jack pine. It was a  
7 mixture, I would say, of 60 per cent or 70 per cent  
8 spruce and 30, 40 per cent of jack pine. I have pretty  
9 good knowledge of these sites, so I would guess it's  
10 actually that ratio.

11 Q. And the seedlings that are planted  
12 are?

13 A. Jack pine.

14 MS. SWENARCHUK: Now, Madam Chair, I am  
15 being advised that we are unlikely to get through the  
16 next section which is four slides by 11:45.

17 Did you want us to begin or did you want  
18 to break now?

19 MADAM CHAIR: Why don't we start and get  
20 through one or two slides.

21 MS. SWENARCHUK: Fine.

22 Q. The next section is entitled the  
23 Effects of Rapid Decomposition in the Forest Floor and  
24 Drying Out of Feather Mosses, and we are now looking at  
25 slide 77.

1                   A. Madam Chair, I will go a little bit  
2 into the technical aspect of improper harvesting impact  
3 on the forest floor, and please bear with me.

4                   If you don't understand say so.

5                   Q. She will, Mr. Marek.

6                   MR. MARTEL: Can we go back and pick up  
7 the title, my shorthand is...

8                   MS. SWENARCHUK: It's on your slide list,  
9 Mr. Martel. The Effects of Rapid Decomposition in the  
10 Forest Floor and Drying Out of Feather Mosses.

11                  THE WITNESS: This subject has been dealt  
12 with, Madam Chair, in the previous testimony by several  
13 witnesses and after I read it, after I examined it, I  
14 must admit that I have read something which is put very  
15 simply and I thought perhaps additional know-how should  
16 be given to the way I see it.

17                  The impact of harvesting on the forest  
18 floor is a very serious one; positive and also  
19 negative. Positive in the way that by removing trees  
20 we are increasing the temperature of the forest floor  
21 and we are increasing the moisture of the forest floor.

22                  However, these two things has an impact  
23 on changes in the floor not only ecologically, not only  
24 on bacteria, micro-organism which are mineralizing the  
25 nitrogen here, but they have also an impact on vertical

1 structure and composition of the strata itself.

2 I have mentioned previously, Madam Chair,  
3 that the impact on soils itself below that is not very  
4 serious. It may be serious when drastic changes,  
5 vertical changes of water occur or when flooding occur  
6 from below by restrictions, yes, but in general on the  
7 overall, the impacts -- sand is sand, clay is clay and  
8 unless it's eroded or removed or some other chemical  
9 changes like in the case of an alkaline site where you  
10 get this hardening of the so-called hardpen, and that  
11 affect water which it damages, not the hardpen itself,  
12 it's the surpluses of water which goes up.

13 In Europe I have studied for years. Here  
14 we have something different happening. When the  
15 moisture and temperature rises on these green floors,  
16 which you have seen so many times before, they dry out,  
17 they dessicate, the temperatures are high, the feather  
18 mosses usually are very tolerant, so they impact by  
19 heat, but also trees have a very rapid decomposition.

20 In other words, there is a boom of  
21 activity, microbial activity in the forest floor  
22 immediately after harvesting. I think that was said by  
23 Mr. Armson, that was said by others, but what was not  
24 said that that creates one problem and that problem is  
25 that this water rise after cutting and this drastic

1 decomposition, vertical restructuring occurs which may  
2 be treated by other environment, like freezing; not  
3 only water rising, but freezing, the position of the  
4 roots, the roots are always plate like. This is part  
5 of microcosm of the black spruce root system and here  
6 you can see the roots here sticking out.

7 On the other hand, it's a very  
8 interesting phenomenon, that if you have a normal, say,  
9 jack pine sites with sands, that these desiccated  
10 feather mosses usually desiccate, lots of decomposition  
11 occur and do not create this air space or vertical  
12 restructuring of the humus, in this case desiccated  
13 humus itself.

14 Now, is this good or bad. This is very  
15 bad because what's happened here is while this drastic  
16 decomposition occur there is also movement of this  
17 decomposed material down vertically. Some of it is  
18 volatilized because this is dry, there is no barrier  
19 anymore. Nitrogen is not being neutralized here  
20 because this volatilization then can't go, so two  
21 movements of nitrogen occur that minimize nitrogen.  
22 This is good hydrogen, not the organic nitrogen which  
23 is the bad nitrogen.

24 Some of it goes down, percolates into the  
25 water which rises, some of it of course goes down to



1 the mineral strata and the rest of it goes in the air  
2 because there is no barrier, no system which can  
3 sustain this and balance the water and nutrients with  
4 it.

5 So what's happened here is that when you  
6 plant trees or when you get natural regeneration, of  
7 course the natural regeneration is established -- and  
8 I'm talking in this case mainly advanced growth which  
9 was there before. The root system of black spruce,  
10 which is a shallow one, and goes, as you remember,  
11 right to the top of this organic material, desiccates  
12 it or is deprived of nitrogen drastically from one  
13 season to the other.

14 Then question comes: What does this  
15 spruce do. Is black spruce so intelligent that with  
16 these kind of shortages decide to get black spruce root  
17 system down in order to mineralize -- to get these  
18 mineralized nitrogen? Black spruce cannot change its  
19 morphology and always does well in a strata which is --  
20 the biological turn-over is happening and when it's not  
21 available, then what?

22 Of course the black spruce suffers. Many  
23 experiments were done. That's why many companies are  
24 planting jack pine. The reason being, not only will  
25 they get a better survival with jack pine, a better

1 growth, initial growth, but also they get a poor  
2 survival of black spruce. Why, because black spruce  
3 doesn't fit in the strategies of bark density of the  
4 forest growth, the disturbance by the breakage of the  
5 vertical position of these different strata. Creating  
6 air pockets, of course, immediately you are encouraging  
7 drying out. So black spruce is in trouble.

8 That's why it takes so long to establish  
9 black spruce in the Clay Belt. It takes it sometimes  
10 10, 15 years to establish spruce which is one major --  
11 that's why we are replanting cut-over areas which have  
12 lots of spruce or was spruce stands to jack pine  
13 because jack pine can be put in this hole here, you  
14 know, and its root system always go vertically and has  
15 the capability to exploit stratas which black spruce  
16 cannot do very well.

17 That is a problem with our black spruce  
18 management and that's why I'm here today to say that if  
19 we are going to make these disturbance bad for black  
20 spruce environment, then we are in trouble in black  
21 spruce management and sustained management of black  
22 spruce.

23 We don't know -- some people said to me  
24 when they visited these sites - and I have an arsenal  
25 of pictures, documents - he said: Well, George, why do

1       you want black spruce there in the first place? I  
2       said: Well, because it was black spruce before and I'd  
3       like to see black spruce perpetuated and it's site  
4       suitable to it. Well, why don't you plant ledum, which  
5       is of course other conifer species, as you know,  
6       tamarack grows up north, tamarack with ledum. You just  
7       site prepare it -- upside down and put the ledum in the  
8       mineral soil and it's going to do all right and they're  
9       disappointed, because actually that tells me that jack  
10      pine planting also is...

11               These sites indicate how well it is for  
12      years, for three, four, five years when -- by this bark  
13      density of disturbed, and I will be very specific, AH  
14      layer with decomposed layer on the top of the mineral  
15      soil, water poured through because it's not prevented  
16      with anything there and jack pine grew over because it  
17      can surge down, sink the roots fairly down and exploit  
18      the mineral soils.

19               MS. SWENARCHUK: Mr. Marek, I think we  
20      need to stop here. The Board needs to leave at this  
21      point.

22               MADAM CHAIR: Thank you, Mr. Marek. We  
23      will be back at 1:30.

24               THE WITNESS: Thank you.

25      ---Recess taken at 11:50 p.m.

1 ---On resuming at 1:40 p.m.

2 MADAM CHAIR: Please be seated.

3 THE WITNESS: What's the number of the  
4 slide, ma'am?

5 MS. SWENARCHUK: Q. We have No. 77,  
6 slide No. 77 is on the screen and you provided an  
7 introductory comment on this question before lunch.

8 Now if you would like to proceed to  
9 describe the slide.

10 A. We spent enough time on this. Let's  
11 go and show the detail of the restructuring, the damage  
12 to the forest floor.

13 The air spaces which develop between the  
14 dry-out surface of the forest humus, in this case the  
15 feather mosses, and collapse of this whole structure,  
16 the original structure of the system. It's pretty hard  
17 to visualize, Madam Chairman, that we can accomplish  
18 satisfactory results - vis a vis regeneration and  
19 reforestation - with the kind of damage which occurs  
20 here because it's hard to see that anybody can plant  
21 trees properly in that kind of area and this happened  
22 over the total ecosystem or total sites effected.

23 So I can express here the concern that  
24 this is allowed to continue, and I think that perhaps  
25 one suggestion I could make, that modified cutting or



1 the cutting which restricted total removal of the trees  
2 would, to some degree, and to a large degree in some  
3 places on certain sites, remedy the situation.

4 Q. Now, Mr. Marek, could you describe  
5 exactly, briefly but exactly, what process led to this  
6 space? First of all, what happened to the feather  
7 mosses here?

8 A. Well, I just went through it. What's  
9 happened, of course -- and I will repeat again.

10 Q. Yes.

11 A. The upper portion of the humus, the  
12 strata, which is very biologically active, support the  
13 mineralization of nitrogen, making nitrogen available  
14 to the growth of the tree. It is affected by the  
15 extreme fluctuation of temperature, too hot, too dry,  
16 exposed to the sun, the whole site, but at the same  
17 time the water rises and certainly by water rise the  
18 effect would be that the whole structure, the whole  
19 layer is uplifted.

20 Then you have effect of -- additional  
21 effect of freezing which, again, may destroy the  
22 homogeneity and the connection of this total system,  
23 the upper strata, and then you have, of course, the  
24 effect of leaching, the water goes through, very  
25 quickly through the dry strata and down to the mineral

1 soil which is below this.

2 In other words, you cope with additional  
3 leaching of nutrients, which was prevented by the  
4 natural system by its homogeneity, bark density and so  
5 on. And at last I would say that the stratas were --  
6 the possibility of placing trees or regeneration  
7 growing on this site is very much in jeopardy.

8 Now, the experiments done in this field -  
9 and I did some of them - shows that eventually after  
10 years, several years, a period of time, this maintains  
11 an incompetency or inability to support very good  
12 growth.

13 On top of this, it seems to me that  
14 examining the lower strata on this humus layer -- there  
15 is a humus layer which has this problem and underneath,  
16 of course, is a material which may be made of clay or  
17 soil, physical material, and is subjected to extra  
18 leaching because the living status prevents this  
19 leaching by leaching the water downwards, movement of  
20 water downwards because it has the ability to absorb  
21 water, maintain that water, that moisture and of course  
22 make it available to the tree.

23 This is broken down. Now, the water can  
24 go right through very quickly, hit the mineral soil and  
25 firm there. Because mineral soil hasn't got the

1 protection of the strata, it goes through mineral soils  
2 and downwards. So in many instances, eventually after  
3 years, again depending on the site, depending on this  
4 whole system which is affected here, in some cases this  
5 drying out or this drying out and the leaching process  
6 downwards can bring actually very dry condition in the  
7 strata which, again, is a true detriment of the growth  
8 because excess drying and losing of the moisture  
9 provides the mineralization nature...

10 The carbon, a very important part in  
11 these chemical processes, the Cn ratio varies  
12 tremendously and that has been measured and documented  
13 and, again, leads me to believe that it affects the  
14 total ecosystem, its infertility, productivity and the  
15 rehabilitation or resiliency of the sites.

16 Q. Now, there is literally a hole in the  
17 forest floor is what I take that --

18 A. Yes, air space which may be that wide  
19 and it's -- right here. It's a big hole. The root  
20 system sits on the top. One of the --

21 Q. What is approximately the size of  
22 that hole, if you could describe it for the reporter,  
23 please. Is it one inch?

24 A. It's an air space which usually  
25 covers the area of the whole total root system at the

1 top; in other words, you have a stump and you have this  
2 plate like root system and the whole root system is  
3 hanging in the air.

4 Q. Is it one inch of air or six inches?  
5 Is there a range there of possible sizes?

6 A. Yes, it's different. This is a whole  
7 which is probably foot deep. If you're going to have  
8 that kind of thing - it was probably deepest when I  
9 took that picture - you can break your leg, you step  
10 and you go right down and it has happened quite often  
11 that planters get injured by stepping in these  
12 openings, these air spaces and all of a sudden they  
13 have a problem. This is not a site you can plant trees  
14 on in the first place.

15 Q. In the slide description, you've used  
16 two dates; details showing the air spaces, 1987, Lake  
17 Nipigon Forest, 1990?

18 A. Yes.

19 Q. 1987 was what?

20 A. This was harvested some time in 1987.  
21 I took this picture, as a matter of fact, last --  
22 pardon me, this spring.

23 Q. Right. So then this is a hole that  
24 you see three years after the harvest?

25 A. Yeah.



1 Q. Okay. Next slide please. This is  
2 slide 79.

3 A. It's very similar stuff, only a  
4 little bit earlier where you have certain -- you see  
5 the colouration of these forest humus at the top, the  
6 process of darkening and desiccation, the drying out,  
7 the impact of soil radiations, so this is sometimes  
8 between, you know, maybe two years after.

9 Here you can see by this colour that the  
10 feather mosses are not completely dead. It didn't turn  
11 gray or blackish, but still you have these crops of the  
12 -- the crops of these things creating these air spaces  
13 and holes. So it's an actual identical picture, but  
14 you know...

15 I have documented the succession by  
16 months and months sometimes during the season. So you  
17 can see how that thing works and, of course, in the  
18 winter you cannot do it, but during the summer of the  
19 frost-free season you can see the degradation from  
20 day-to-day, as a matter of fact, or from months to  
21 months.

22 Q. Okay. The next slide is slide No.  
23 80.

24 A. Now, eventually the site you can  
25 occupy it and I have stated before that this is not a

1 stable condition. There's always a process of changes  
2 and eventually after years this site become occupied  
3 usually by the encroaching vegetation which can  
4 tolerate these kinds of conditions. It's a strict  
5 adaptation to this condition and these are a typical  
6 picture of these old cut-overs.

7                   You still have this partly decomposed  
8 branches and partly decomposed stands and, in this  
9 case, the site is occupied now by Labrador tea and  
10 Labrador tea is an ericaceous plant which doesn't  
11 support spruce very well either. Studies are underway  
12 now throughout -- specifically in B.C. because they  
13 don't deal with ledum, they have other competing  
14 vegetation which capture these sites after harvesting,  
15 and there is a very serious thought now to document how  
16 much competition and how much nutrient demand is being  
17 taken by spruces which should be occupying that site in  
18 the first place and would have been there probably if  
19 the fire went through in standing timber.

20                   But here this way, by changing the whole  
21 ecological aspect, we get these plants which compete,  
22 of course, through their root system for nutrients,  
23 whatever is left there, with the primary species which  
24 may be spruce, in this case. So it just shows that  
25 once this degradation started, there's no end to it

1 because the other species -- well, you have this  
2 dessicated condition and dry condition and after while  
3 species opportunistically moves in, takes over the  
4 site, thus jeopardizing, of course, the establishment  
5 of the primary species.

6 Q. Now, how would you go about returning  
7 a site like this to primary species production?

8 A. Okay. What it means is to remove  
9 this fully or partially; in other words, the  
10 competition has to be removed and also the physical  
11 obstacle by itself is very important.

12 I'm going to use other term. Salal  
13 competition, which is --

14 Q. You will have to spell that one for  
15 us.

16 A. It's s-a-l-a-l. Salal competition is  
17 an ericaceous plant frequently observed in British  
18 Columbia and Alberta and western provinces where the  
19 root system of these species affects the establishment  
20 of other species by its vigorous growth, by the great  
21 demand for nutrients, and size over there. We have  
22 Labrador tea.

23 Anybody who was in Newfoundland,  
24 and there was a conference just a few months ago -- it  
25 was the theme of the conference, what are we going to

1 do with competition of this nature because they feel  
2 strongly that even if you established, later on, like  
3 counsel suggested, what are you going to do. Well, you  
4 can scrape it off and start all over again if it's  
5 possible using the technology which we have, it's  
6 difficult sometimes, but in Clay Belt, people who work  
7 in Clay Belt try to do it sometimes with this shear  
8 blading; in other words, they take a bulldozer in  
9 winter.

10 In summer you cannot go there because  
11 you'll go through. If you're able to move your  
12 equipment you will get struck, but in winter they level  
13 the blade to a certain level and try to scrape this  
14 whole layer off and start all over again; in other  
15 words, plant trees in these bare exposed soils. It's  
16 successful in some cases, and I have seen good success.  
17 I have also seen how difficult it is on these sites,  
18 when advanced to such a state, to bring this site into  
19 production because sometimes the site preparation of  
20 scraping can be too deep, sometimes it's too shallow  
21 and when you are dealing with two, three feet of snow  
22 it's pretty difficult to manipulate the equipment to  
23 your maximum performance.

24 Site preparation of this nature is  
25 extremely expensive. I hate to even mention here the



1 hundreds of dollars this may cost and the  
2 rehabilitation process is sometimes very risky. So  
3 there are ways to do that, I suppose, but again our  
4 technology didn't advance enough to do it to securing  
5 satisfactory results or good results which should be  
6 done.

7 Does that answer?

8 Q. Now, you showed this sequence of  
9 slides and you have commented also in the written  
10 witness statement about this problem of water table  
11 change in current forest harvest practices. How do you  
12 suggest this whole problem could be prevented?

13 A. Repeat again. One of the things is  
14 cutting practices. Mr. Martel suggested that perhaps  
15 the total removal of forest is not the right answer,  
16 and I think that it should be obvious to us, to all  
17 that the problems with these harvesting practices  
18 perhaps partly should remedy the situation, but this is  
19 not total answer either.

20 I think that modified cutting, partial  
21 removal, partial cutting perhaps can affect or will  
22 affect the evapotranspiration processes by reducing the  
23 total impact of total removal of the vegetation in case  
24 of clearcutting. Obviously, when you leave half of the  
25 stand standing, the input into the water cycle is

1 minimized; in other words, if you leave even one tree,  
2 some water is going out through that pump and being  
3 circulated.

4 It's a combination again. There were  
5 many ideas of integrating silvicultural with  
6 harvesting, which was such a great goal and great wish,  
7 but it will not be done and implemented until we  
8 initiate practices which will remedy this situation.

9 So practically speaking, the so-called  
10 integration of silvicultural and harvesting was only  
11 partially fulfilled by certain responsibility where the  
12 company do perhaps tree planting and the company do  
13 perhaps even this if it's possible, but there's got to  
14 be a much better ecological understanding if we are  
15 going to establish those kind of processes of  
16 integration.

17 Q. Okay. The next section in the slides  
18 is entitled tree planting of cut-overs and we are now  
19 looking at slide 81.

20 A. Yes. I think I would miss the  
21 opportunity if I do not mention some problem with  
22 planting stock, some problem with planting itself and  
23 the strategy which perhaps could be improved in that  
24 field.

25 So I have chosen this slide to show you a

1 plant, a black spruce plant which idealized the proper  
2 trees planted on certain sites. This is a transplant  
3 stock, I think it's two stock; in other words, the  
4 plant was nurtured in the seedbeds for two years and  
5 then it was transplanted into the other beds and that's  
6 where it stays in there for two years and after two  
7 years it is being taken out into the field for  
8 outplanting.

9 One of the most important system in plant  
10 survival generally, it's not only black spruce, but  
11 generally plant survival and plant establishment, being  
12 taking out the ideal seedbeds and by ideal conditions  
13 in seedbeds you are nurtured, you are taken care of, you  
14 are -- the plant is being watered and the  
15 fertilizations are being used. Well, the typical  
16 processes which occur when you start nursery  
17 production.

18 Now, this planting stock is expensive  
19 because it is being taken care of very consciously, but  
20 I think the important thing here is that when I look at  
21 this plant as a forest manager and I look at the root  
22 system, which is very fibrous; in other words, lots of  
23 roots, lots of secondary roots, lots of little rootlets  
24 which we call fibre or the feeders and so on, and  
25 that's why I think this kind of equipped plan has a

1 good survival possibility in the plan for outplanting  
2 in a fairly hostile environment.

3 One must not forget the condition in the  
4 seedbeds or transplants are completely different from  
5 that of cut-overs, and I gave you some perception of  
6 what cut-over means in this picture. So when you take  
7 this plant and look at the root system, it's very  
8 fibrous, lots of soil particles attached to it, lots  
9 of soil particle, which is very important, because that  
10 tree got to live for quite a few months on resources or  
11 on storage soil and nutrients which is taken out of the  
12 nursery with that plant.

13 The second thing, of course, is the rigid  
14 stem, very woody like texture which, again, proves to  
15 me that when I outplant this kind of stock in a hostile  
16 environment of cut-overs with all kind of competition,  
17 with all kinds of possibility of snow damage because,  
18 as you know, we get three or four feet of snow up  
19 there. That snow diminishes later on, spring comes in,  
20 there is a frosting, there is a crusting of snow. All  
21 of these environmental impacts has a very basic -- a  
22 condition of the plant itself.

23 So rigid stock, which can reduce the  
24 impact of smothering, and by smothering - perhaps it's  
25 another term I should explain - smothering by heavy



1 competition of grasses which, when the snow gets on the  
2 top, by shear weight can smother this tree.

3 Through my services with MNR I have  
4 learned very quickly the kind of conditions you require  
5 in order to demand certain stocks because if you follow  
6 your plantation consciously and you monitor, No. 1, the  
7 survival, condition and so on, you very quickly find  
8 out what stock you need there by your survival, by your  
9 health of the trees and so on.

10 But I brought this picture for other  
11 reason also and that is, the changes in the root system  
12 in black spruce is quite unique. Black spruce is a  
13 short rooted species which is morphologically and  
14 physiologically has the ability to establish a new root  
15 system, new root system in vertical horizons after  
16 being outplanted, adjusting that to the new condition  
17 of the humus layer.

18 The humus layer at the beginning, say  
19 after disturbance, after disturbance of fire, is  
20 usually very shallow and grows, it's getting thicker  
21 and thicker, accumulating biomass, changing density,  
22 but always get thicker, always gets a little bit more  
23 acid and eventually when trees are growing to maturity  
24 you alter nicely the position of the horizontal  
25 distribution of the root system, very shallow, adjusted

1 by growing upwards, adjusting to the new forest floor  
2 which is biologically active.

3 In other words, all the feeding is done  
4 here in that time around the root collar -- pardon me,  
5 below the root collar, in the upper strata of F layer.  
6 We call it F layer.

7 Will you switch to new slide, please.

8 Q. This is now slide 82.

9 A. This is outplanted spruce of very  
10 similar quality as I have shown you from the nursery  
11 after -- and I forgot. Is that ten years, eight years,  
12 but anyway, it shows condition of the root system after  
13 outplanting in very rich areas, areas which have a very  
14 high capital in the soil.

15 When you dig out this root system after  
16 eight, ten years, you immediately see that the original  
17 root system which was someplace here, is being replaced  
18 by completely new system which is in a horizontal  
19 direction and then you chemically analyse the  
20 productivity of this system.

21 You will find out that it's decreased its  
22 productivity demand and it's fading away, eventually  
23 completely disappearing. After 10, 15, 20 years, you  
24 may see that this completely disappears and is  
25 substituted by the new root system, which is unique.

1 It's happened in other species I must say, but it's  
2 very important and very typical for black spruce.

3 Madam Chairman, the reason for that is  
4 very simple. This root system is not needed, this root  
5 system, as a matter of fact, cannot function for a long  
6 period of time in this strata, deeper soils because it  
7 fails to produce the biological activities of the  
8 surface strata where the mineralization of nitrogen,  
9 the transfer of organic nitrogen and mineralized  
10 nitrogen occur.

11 This has ramifications. And let's go  
12 back to slides we have seen yesterday and today where I  
13 have always said the importance of the forest humus in  
14 the top strata of the soils. That is the life of the  
15 spruces, especially black spruce, because the black  
16 spruce is not in doubt morphologically, physiologically  
17 to explore the root system and the shoving that root  
18 sytem down to the deeper strata and strictly depending  
19 the root system they will occupy the secondary root  
20 system.

21 Any questions, Miss?

22 Next one, please.

23 Q. This is now slide 83.

24 A. Majority of tree planting in the  
25 boreal forest now is done by a different kind of

1 technique, different kind of -- it's the same species,  
2 but with different kind of root development, with  
3 different kind of strategies.

4 That stock you see here -- and this  
5 should be the other way perhaps, this tree is hanging,  
6 not going up. It shows very clearly the original  
7 container which is here. The container was put in the  
8 ground probably properly at that time, but the  
9 expansion of the forest floor, in this case it was  
10 sphagnum moss, they expanded dramatically after the  
11 sphagnum get established and look what's happened here.

12 While it was placed there originally, all  
13 of a sudden we have the forest floor way up here. You  
14 see that browning of this stem here, the mortality of  
15 the needles, this shows me -- as a matter of fact in  
16 this case it's a fact, that when I pulled out this tree  
17 the forest floor was up to here. (indicating)

18 Now, this is perhaps more typical in the  
19 Clay Belt than in, say, northcentral region or uplands  
20 in farther west regions, but this shows me that the  
21 original system were there, became overgrown by the  
22 succession in the forest floor and all of a sudden you  
23 have up to here forest humus. (indicating)

24 So immediately the reaction of these  
25 trees is, hurry up, boy, you've got to survive, let's



1 start establishing a root system here, and that's what  
2 they do. Let's forget about this one, no nutrients  
3 there, I cannot growing on that, so let's establish --  
4 and this is what's happening here. No rootlets, new  
5 feeders are established here in order to exploit the  
6 strata at the nutrients.

7 This is one problem because in dynamic  
8 growth later on and, as I mentioned a few minutes ago,  
9 the water table and the growth of this sphagnum medium,  
10 which is now the rooting system, rooting strata for the  
11 adventitious rooting may slow down, as a matter of  
12 fact, may collapse. Because water goes down and the  
13 water level goes down after three, four years, this  
14 will not mould in producing the mineralized nitrogen.

15 So the tree got to hurry again to  
16 establish new root system here, and in many instances  
17 black spruce is not able to do that. By losing this  
18 adventitious root system, it's the only thing that  
19 spruce can hang on and produce what we want to produce.  
20 Therefore, the fluctuation, this harmonica, this back  
21 and forth of fluctuating water levels directly affect  
22 the establishment of the adventitious root system, thus  
23 affecting the growth of the support, growth for the  
24 support, thus it may endanger the survival and the  
25 growth, affect the growth of the spruces, black

1 spruces.

2                   This has been -- the adventitious root  
3 system has been studied for years and years in Europe  
4 in different spruces, it's the Norway spruce we have  
5 -- or the Europeans have, we have black spruce. The  
6 other thing which has always been absurd in Europe in  
7 Norway spruce -- and I do not compare Norway spruce  
8 with black spruce because Norway spruce probably is  
9 more similar to our white spruce, it grows in the  
10 uplands. Black spruce is typical spruce which grows  
11 nearly where everywhere, but it has been documented  
12 that this this may in instances, under certain  
13 conditions later on in plantations, cause a root rot.

14                   MR. FREIDIN: Cause what? I'm sorry, I  
15 didn't hear.

16                   MS. SWENARCHUK: Root rot.

17                   THE WITNESS: Root rot.

18                   MR. FREIDIN: Thank you.

19                   THE WITNESS: This has not been  
20 documented as yet in boreal areas of black spruce from,  
21 say, Quebec and Newfoundland to Saskatchewan and  
22 Manitoba. However, in my plantations, areas which I  
23 was planning and implementing reforestation, it  
24 frequently occurred that this back and forth  
25 establishment of the adventitious roots may affect the

1 growth and, of course, that can be traced in the rings  
2 and in the growth itself of the tree. There's a wood  
3 increment.

4 It requires extra effort. These poor  
5 spruce got to go back and forth. Once I have lots of  
6 water, next time I have little water, next time I am  
7 going to have this condition and this adventitious root  
8 system, which had to adjust in order to make these  
9 nutrients available, really does not know where to go,  
10 and it's pretty difficult not to see that this effort  
11 is connected to the nutrition, it's directed to the  
12 energies and in growth itself.

13 So perhaps if we understood better this  
14 process of adapting black spruce to this fluctuation of  
15 water, waters levels, perhaps the nutrient value of the  
16 root system -- of the areas, which are so important to  
17 the survival, perhaps we may find out that we could  
18 create the kind of better medium or better strata to  
19 save this energy of processes to produce what we like  
20 to produce; in other words, the normal growth which is  
21 usually done under the condition of wild fires, natural  
22 regeneration.

23 See, natural regeneration also have to  
24 adapt to the root system, but it's much more  
25 controlled, it's usually modified by the much milder

1 and circumstances which do not have this drastic  
2 changes, which quite often happen on large area  
3 cutting.

4 Q. Just one question, Mr. Marek. Is the  
5 original root dead on that seedling?

6 A. There is some activity still here.  
7 You can see at the top of the container, which is  
8 Japanese (inaudible), there were some activities  
9 growing in this area. There was very little activities  
10 here, there is no activity over there where you have  
11 the openings. (indicating)

12 So you can see there was original  
13 activity which may have kept that spruce alive in the  
14 first place, so there is some margin, but later on, of  
15 course you have the problem that this is discarded more  
16 or less and new growth establishes in the proper strata  
17 or the mineralization...

18 Q. Will that original root system die  
19 eventually or does it remain active and alive?

20 A. Well, you see containers is new  
21 element, new strategies in the reforestation efforts  
22 and I think that only the future is going to show us,  
23 as always in forestry, what the results really will be.

24 A container planting has been implemented  
25 in the last 10 years, last 15 years, experimented in



1 the forest. Perhaps now we can look at these problems  
2 and document the destiny of this root system.

3 I cannot tell you. I did not have a  
4 chance really to look at these on a broader and wider  
5 spectrum and I suspect that nursery men and foresters  
6 will be very much anxious to get into it sooner or  
7 later, but perhaps sometimes -- you know, time is too  
8 late to do something about it.

9 The reason I mention it exists is in  
10 Europe they would be horrified. If you plant Norway  
11 spruce this way in Europe - Norway spruce, I'm not  
12 talking about other species, Norway spruce - I think  
13 there will be great concern that this may induce some  
14 of the risks like root rot and bacteria and all kind of  
15 things which may have a damaging effect on the tree  
16 growth itself.

17 The root rot usually starts from the root  
18 system and once the root system is damaged many rot --  
19 Armillaria -- maybe I should -- shoe string rot may be  
20 introduced into the root system and causing this  
21 problem later on when the plantation is older.

22 So this is something which I'm sure will  
23 be investigated in the near future because we have  
24 thousands of hectares planted now by this method and  
25 it's going to be interesting if that root system will

1 be functioning as we wish to have it.

2 Q. We will have the next slide now which  
3 is now 84.

4 A. This is typical. This was taken on  
5 Abitibi north of Lakehead and you can see the double  
6 colour, double damage is here. Defoliation, probably  
7 by budworm, here is your container which already start  
8 being inactive and new root start growing here. You  
9 can see the little offshoots of these feeders there.

10 So these are the further kind of things  
11 which makes me worry when you have a plantation and  
12 this plantation starts getting kind of double risk,  
13 triple risk, risk of this kind condition of the root  
14 system and the container, then of course immediately  
15 the bugs get into it.

16 I think this is, for a forester, a sign  
17 that he got to be extremely careful and consider some  
18 of the very basic risks in artificial regeneration.

19 Q. The next slide is slide 85.

20 A. Remember I was showing you the strata  
21 of the forest floor which is very clearly disturbed,  
22 which created these holes and so -- now, when a planter  
23 gets in that kind of condition, what happens is this,  
24 that he put that tree in that air space or in that area  
25 where the disturbance occur; in other words, still

1 hostile environment, and in order to get some survival  
2 of moisture, in this case he has got to sometimes dig  
3 the hole. There are cases I know where we have to dig  
4 one foot in order to get that tree to the mineral soil  
5 in the earth to survive.

6 This is a ramification of these large  
7 area exposures to these general conditions of the  
8 forest floor and we are planting trees into it, and  
9 that's a very dangerous situation because that tree has  
10 very little chance to grow well and establish itself  
11 because, as you see, there is some defoliation, there  
12 is also this strata, that air space over that area  
13 which the root system obviously does not belong, and  
14 this is done frequently, that we do not consider the  
15 micro-condition of the planted trees and where we are  
16 putting it.

17 Next one, please.

18 Q. There is no slide 86, so the next one  
19 will be slide 87?

20 A. This is -- again, I go back actually  
21 to that slide which was very similar, enlarging the  
22 microcosm of the tree which was planted here in this  
23 condition. Again, I dug this tree out, I looked at  
24 this and obviously that tree was partly in the air  
25 space because there was no contact with mineral soil,

1       there was lack of moisture.

2                       So while this tree may have been planted  
3       in poor condition in the first place; in other words,  
4       from the nursery coming into planting area with -- say,  
5       started already in area grows; in other words, it was  
6       in process of growth already. All were put in the kind  
7       of microsites which is not suitable for tree survival.

8                       Now, I think in this case the tree was  
9       all right, but it was placed in this very disturbed  
10      condition of these air spaces and disturbance of the --  
11      vertical disturbance of the forest floor and didn't  
12      have a chance to get the contact of its root system  
13      the moist mineral soil or moist strata, in regards  
14      where it may be.

15                      Next one, please.

16                      Q. This is slide 88.

17                      A. This is typical. If you notice that  
18      planting on this hole, in this hanging strata of these  
19      feather mosses, then it's difficult to put the trees in  
20      and, again, another proof that the tree is dead.  
21      There's another one, there is quite a few of them.

22                      Quite often with other people we go over  
23      with them, you know, check and I think the microsite is  
24      main problem of failure on such a plantation. The  
25      environment the tree is put in is not a proper one to



1 get established and grow well.

2 Next one, please.

3 Q. This is slide 89.

4 A. That's a tree I pulled out. I  
5 apologize. Good idea because its sick as hell.

6 Here you can see a tree which is five,  
7 six year old, seven years old. Do I have any dates on  
8 that?

9 Q. I take it the picture was taken on  
10 the Spruce River FMA in 1987.

11 A. It's again element of risk, element  
12 of danger to go into this kind of approach or  
13 artificial regeneration because here is a pathogen  
14 called shoe string or armillaria melia and it's  
15 fruiting bodies are already appearing there. It's this  
16 white stuff, it's partially fruity bodies, partially  
17 gummy. Gum is oozing out of the root system. Usually  
18 indicating completely breakdown of tissue, cambium and  
19 bark around the root collar here, and you can see here  
20 that the container the tree was planted in is trying  
21 desperately to establish a new root system here and a  
22 little bit at the bottom. The tree is still green,  
23 looks very well.

24 If I was assessing that plantation, Madam  
25 Chairman, I would probably -- without considering these

1 - - dangers, without knowing there is something wrong --  
2 there is a certain size you can notice usually smell of  
3 the foliage, that's what I go by very strongly because  
4 it means that sugar started decomposing and it smells  
5 peculiar.

6 As far as foliage is concerned, nice  
7 green, good looking tree. I would say Al, here we go,  
8 perfectly established plantation and sick as heck down  
9 at the bottom and will last probably another two, three  
10 years until it shows the effect of the armillaria melia  
11 by complete yellowing of the foliage and death. The  
12 armillaria melia, in this case the pathogen, completely  
13 destruct the flow of nutrients to the foliage.

14 Q. Mr. Marek, the containers for the  
15 roots there remains relatively in tact. Is that a  
16 problem, in your view?

17 A. I don't know what you mean.

18 Q. The container for the root has not--

19 A. Has not --

20 Q. --biodegraded.

21 A. They are supposed to be biodegraded.

22 The advertisement, of course, is misleading because  
23 everyone practising forestry should know by now that  
24 most of this sack or the tube that these trees -- the  
25 root system should be grown out and does not happen.

1 It happened here, it's happened at the bottom because  
2 of there's the opening, but when it comes down to the  
3 ability of the root system to expand this way it's  
4 questionable because there is obstruction and very  
5 little obstruction in these little feelers which are  
6 extremely sensitive little monkeys there. It's pretty  
7 difficult to say....

8 Let's go back and look at this plantation  
9 as it is. In many instances, it's very misleading to  
10 judge survival and well-being of the planation at year,  
11 one, two, three, four. As a matter of fact, it's even  
12 misleading at age 10, 15 because we never know what's  
13 going to come after.

14 I suppose we go right into the kind of  
15 assessment of -- quality assessment of result of  
16 prescription or the tree planting by itself here. I  
17 have learned tough lessons on tree planting. I have  
18 learned that I admire my plantation and worship my  
19 plantation with many people for years, finally  
20 realizing that after 15, 20 years I was completely  
21 wrong because the trend seems to be completely reverse  
22 what I thought. I was prognosticating yield, I was  
23 planning for all kind of success; in other words, kind  
24 of very static predeterministic way to being big  
25 profit. I should have known better.

1 I know and I have been warned by many  
2 European foresters who come and say: Watch it, boy,  
3 one of these days you are going to have a big surprise  
4 coming to you and indeed it came. It came and it's  
5 coming again and again after being involved in tree  
6 planting for, oh gosh, all my life more or less, and  
7 here I thought maybe Canada is different, maybe we are  
8 going to be more successful with our tree planting than  
9 the Europeans who are aware of some of these risks, and  
10 learning from it.

11 I guess we have to learn the same way,  
12 that the risks involved in artificial regeneration are  
13 tremendous. They may start with this armillaria melia  
14 here and weevils and we start with budworm and I don't  
15 know what else, but they come sooner or later. Snow  
16 storm comes sooner or later. Maybe happening only once  
17 in 20 years, but then it hits the plantation and look  
18 out.

19 So this is a warning to anybody who, you  
20 know, for one reason or the other say: I have a very  
21 established plantation at year one or five or even ten  
22 and all of a sudden realize it's not growing there, you  
23 know, taking these things for granted and saying:  
24 Okay, I saw it ten years ago. He may have a big  
25 surprise after he visits that area again. This



1 happened to me.

2 Next one, please.

3 Q. Slide 90.

4 A. Which one?

5 Q. Slide 90.

6 A. Okay. Let's go back to risks in  
7 planning and generally in forest management risk. Some  
8 of them are unpredictable and I think some of them we  
9 can plan for. So there are two aspects.

10 If we get these things of an  
11 unpredictable nature, just hit us hard, and learn us a  
12 lesson or teach us a lesson, that's one thing, I have  
13 excuse, but I do not have an excuse to plant trees in  
14 these conditions. Here are two or three plant in this  
15 very disturbed condition, mucked up, disturbed.

16 In a full growth; in other words, what's  
17 happened here is probably this, that the nursery wants  
18 to get rid of the trees come June 1st and they have so  
19 many trees and they say: Well, it's a little bit too  
20 late, I think these growths will be gone, it's going to  
21 be tough to replant it, but they quote us the targets.  
22 Our corporate thinking is the most important one  
23 because you have to fill out the paper after all and  
24 dig out with computers how successful we are, come to  
25 this, that you take trees which are flush out and by

1 flushing out the area rows begun the old chemistry, the  
2 whole process is at its peak.

3 You plant it in an environment which  
4 absolutely cannot serve these demands, demand of the  
5 growth. If you are going to put your plant, Madam  
6 Chairman, in a stagnant or water out a ditch some place  
7 during July, you will very quickly find out that plant  
8 will not do very well.

9 Well, how can we expect this not to  
10 happen in forestry. There is a full growing tree  
11 planted -- this picture was taken two days after. As  
12 a matter of fact, I was there when they are planting  
13 it. How is it that tree will survive. Well, that's  
14 naive thinking. I don't think we should indulge in  
15 these things because it's strictly wasteful.

16 So may I see the next slide and see  
17 what's happened there.

18 Q. The next is slide 91.

19 A. Okay. Here you find this. All these  
20 trees are dead. This yellow one has been corrupted.  
21 Here is another one here, too. There's a few.

22 They died. Why? Because they shouldn't  
23 be put there in the first place. That is not area to  
24 plant trees. Look at these conditions.

25 Next one, please.

1 Q. This is now slide 92.

2 A. Okay. You go there two years later.

3 As a matter of fact, these are identical sites. As a  
4 matter of fact, some of them are the same.

5 Two, three years later you go there and  
6 you will find these kind of conditions. Where are the  
7 trees here? Oh, here is one here. As a matter of  
8 fact, i marked them. I put the marker there, the  
9 yellow -- white markers where the trees are dead. They  
10 are all dead. There is no excuse for this. This site  
11 cannot support growth, that should be well known, and  
12 specifically it will not support black spruce.

13 Q. Could I just clarify, Mr. Marek.

14 A. Yes, go ahead.

15 Q. You have said in the revised list  
16 that this is the same problem in an area planted in  
17 1987.

18 A. Yes.

19 Q. So this is a similar problem but not  
20 the same area as we saw in the previous slide; is that  
21 correct?

22 A. It's not far away from it. It's very  
23 close.

24 Q. Fine, okay.

25 A. It's not far away from it. This is

1 an area, now that we see, is probably about two miles  
2 away from the original from what I saw.

3 Q. The next slide is 93.

4 A. Well, let's go to Clay Belt and this  
5 is a typical Clay Belt area; in other words, this is  
6 the upland there which were originally mixed wood  
7 forest and the company decided to turn it over into the  
8 spruce plantations.

9 They clearcut it, they had to herbicide  
10 this condition to conduct the tending that was there,  
11 but what this slide shows is this. These areas here  
12 beyond, which are the uplands, and there is no big  
13 problem with water moisture or moisture period because  
14 they are uplands, they drain very well, but they drain  
15 into the lowland and look at this, both these  
16 plantations are alone.

17 A large area had been planted eight, nine  
18 years ago, lowlands are still not being reforested  
19 because the original plantation died off. They  
20 couldn't grow because those trees wouldn't survive. On  
21 the other hand, the vegetation, the competitive  
22 vegetation, bull rushes here, they are growing well.

23 So, you know, the lowlands are showing  
24 across the board in northern Ontario that these  
25 lowlands are extremely sensitive and we should take



1       into consideration this water level problem and  
2       destruction of the upper stratas of the forest floor.

3                   Plantation is very successful here. I  
4       walk it. It's a large plantation and I -- okay. At  
5       the age of five and ten - I think this was five, six,  
6       years old -- it's good. It was growing well in the  
7       uplands. Nice mineral strata there, very productive  
8       sites because original produced hardwoods, lots of  
9       poplar and I think birch was there, too, and it will do  
10      very well.

11                   Now, what the future is five years from  
12      now, gosh, I cannot guess. They may have a problem  
13      with it yoo, as I did, but it's completely visible  
14      here. It's obvious that the success of plantations  
15      with drainages and lowlands doesn't take place. The  
16      success is very poor.

17                   Q. Mr. Marek, how prevalent is the  
18      problem in your view of plantation failures on lowland  
19      areas?

20                   A. Well, the lowland area is disturbed  
21      heavily by logging. Kind of a problem one way or the  
22      other, but there is additional problem that any lowland  
23      areas are extremely fragile, if you call it fragile,  
24      unstable areas which is exposed to the very drastic  
25      fluctuation in the water level. And when you talk

1 about recent reforestation efforts, plus the  
2 disturbance by logging, then you have a double problem.  
3 You obviously got to look what you got to do with the  
4 lowlands.

5 We know what we would do with uplands,  
6 it's no problem. We planted it, it's easy planting,  
7 but here we have a mortality and we can't -- there is  
8 not always death here, there are trees sometimes here,  
9 there which will survive, depending on the the  
10 microsite conditions, but in general the lowlands are  
11 really target of -- target for poor regeneration  
12 success due to the destruction of the site.

13 MR. MARTEL: What would you do then? You  
14 would not have clearcuts and try to allow for more  
15 natural regeneration in this site from the seed than  
16 from the...

17 THE WITNESS: You want to talk about this  
18 site specifically?

19 MR. MARTEL: Well, that's part of the  
20 site we are looking at. You have the highlands, the  
21 lowlands, what are you going to do with the lowlands if  
22 you are harvesting there and you can't regenerate --

23 THE WITNESS: Well, you can minimize  
24 disturbance first. That's No. 1.

25 MR. MARTEL: All right.

1 THE WITNESS: Logging prescription or  
2 logging system impact these conditions really. So  
3 let's do something there in the first place. Do not  
4 create conditions which on top of other disturbances  
5 and other impact is going to multiply the problem.

6 Okay, fine. If you have a larger area of  
7 lowlands like this -- and this area was approximately,  
8 I would say just by guessing, maybe 10 hectares or so,  
9 between 5 and 10 hectares.

10 Produceable timber, because the stump is  
11 there, has been clearcut. In order to prevent it you  
12 will have to take care of logging practices, somehow  
13 not disturb it. If you can regenerate naturally, try.  
14 Many people feel that area small like this, 10 hectares  
15 should have been, as part of the total logging scheme,  
16 should have been bypassed or should have been treated  
17 by some other method by normal operation -- you know,  
18 stripping cutting and so on.

19 If not, then clearcut it but don't  
20 disturb the site, don't expose the muck, the humus and  
21 then very carefully plant the trees. And by carefully  
22 planting trees means that you have to place trees very  
23 carefully and straight which it belongs. You must not  
24 be too deep, you must not be too shallow, you have to  
25 probably site prepare it very nicely to put that tree

1 in and then I would say hope that this will work.

2 So, again, it's very site specific and in  
3 that case, when you have a large area surrounding the  
4 upland and you have these little lowlands, it was easy  
5 to avoid the damage because you could move around; in  
6 other words, the equipment could avoid this area to  
7 muck it up and just keep that as it is.

8 In many instances, Mr. Martel, this area  
9 like this, these lowlands has a very much large  
10 percentage of advanced regeneration there; in other  
11 words, seedlings are there before the stand was cut and  
12 that's what I call the protection again, protection of  
13 young growth.

14 When the forester makes this prescription  
15 and realizes that there is in this lowland, this 10  
16 hectares have a good representation of spruce already  
17 established, then I would say that his duty is to  
18 protect that regeneration by partial cutting or careful  
19 logging or certain time of the years to log it.

20 Even if it is -- say he was to clearcut  
21 this upland or convert that upland from mixed wood into  
22 spruce is fine, but this has got to be protected and,  
23 as I said, the answer may be the proper planting,  
24 consideration of biological site -- the consideration  
25 to the biology of the site and then, again, proper



1 equipment so you don't disturb that advances  
2 regeneration if it's there because that regeneration  
3 will take care of itself eventually.

4 There will be surpluses of water still,  
5 but I think in many instances, at least the experiments  
6 I have done, if you protect that growth by No. 1 and  
7 No. 2 that I mentioned, then you may much more  
8 successful than you are here in this case.

9 MS. SWENARCHUK: Did you want to take  
10 your break now, Madam Chair?

11 MADAM CHAIR: Yes, this is a good time.  
12 We will have our afternoon break now and we will be  
13 back in 20 minutes.

14 ---Recess taken at 2:40 p.m.

15 ---On resuming at 3:00 p.m.

16 MADAM CHAIR: Please be seated.

17 THE WITNESS: Counsel, where are we now?

18 MS. SWENARCHUK: You mean you don't  
19 know?

20 THE WITNESS: No, I don't.

21 MS. SWENARCHUK: Q. This is slide 93  
22 which we have just finished and we are going to move on  
23 to slide 94 now which is a naturally established jack  
24 pine.

25 A. We are changing the pace in species.

1 Madam Chair, I will talk for a few minutes about jack  
2 pine, natural establishment of the jack pine.

3 The picture is showing development of  
4 growth of jack pine into natural jack pine. Straight  
5 stem, good height increment, that's how trees should  
6 grow.

7 The next slide is -- and compare this  
8 with this. This is a planted jack pine. Planted jack  
9 pine which, No. 1, look at the bend in the stand here  
10 caused by snow, freezing and felling out a snow crust  
11 which forces, of course, trees to adapt to the depths  
12 and eventually you have a crook there.

13 The second thing, please note the  
14 terminal growth. The terminal growth on a natural jack  
15 pine usually one shoots, straight up. Here you have a  
16 multiple growth of terminal. You have at least half a  
17 dozen of terminal feeders and this is not, okay,  
18 everywhere and every year, but it's a simple matter of  
19 problems with plantations where the plant is put in an  
20 environment and cannot cope with it, being victim of  
21 all kind of interferences. Some of them that you are  
22 aware of, of course, like bugs and the snow and the  
23 others and affects, of course, our planning and our  
24 thinking for future yields and future products.

25 Understand that there is a general

1 acceptance of jack pine as popular species, which was  
2 not the case 20, 30, 40 years ago. The pulp and paper  
3 industry didn't want to cut jack pine, as a matter of  
4 fact, bypass many stands of jack pine for reasons that  
5 the technology of paper making couldn't cope with  
6 problem with jack pine fiber and other things like  
7 gumming, bleaching and so on of jack pine.

8 But let's think about for the future,  
9 what has Canada decided to do. Should we be entirely  
10 in pulping or should we also consider sawlog production  
11 for higher and better products.

12 I have travelled throughout Europe  
13 last -- quite a few years since the second world war  
14 and it seems to me that European countries are  
15 adapting - and New Zealand, for instance, and perhaps  
16 the other countries - they are adapting the policy that  
17 the value of fiber should be expressed in quality of  
18 products and that means that the pulping itself is not  
19 the all answer to production of trees.

20 So they are talking about producing  
21 products which apparently pays. The investment is  
22 higher, the investing is obviously much higher than in  
23 producing just the pulp or biomass in this case, and  
24 they feel very strongly that one of these days they are  
25 going to supply the country with good quality poles,

1       lumber, products.

2                       Now, I don't know if Canada or Ontario,  
3       for that matter, in this case ever considered these  
4       kind of possibilities we have and what the planning of  
5       future crop should be. Should we plant for pulpwood  
6       only by nuturing good crop, nuturing good dynamics,  
7       supporting development of good products, or should we  
8       just plant here, there, everywhere and perhaps natural  
9       regeneration and use it as biomass.

10                      The reason I'm putting these two pictures  
11       in my presentation is that even if we are going to  
12       decide, say, jack pine which is a species which can  
13       supply good poles, good long timber, good quality  
14       products, saw timber and so on, whereas spruce is a  
15       very conservative species, at least black spruce is  
16       conservatively growing species, growing slowly and so  
17       on, what are we going to do with timber which is going  
18       to develop like this from the beginning.

19                      Timber which has a crook here, which is a  
20       double eater which is going to affect eventually the  
21       full development of whole tree, branching, the height  
22       growth and this can be probably avoided by saying this:  
23       If we cannot produce decent quality plantation and  
24       prevent these interferences or disturbances by nature  
25       or whatever it is, let's do it the rather natural way,



1 and I go back -- please will you flip that thing again  
2 so it will give us appreciation of quality.

3 This is a natural from seed grown pine  
4 established on cut-over by accident. In some cases it  
5 could be done by seeding, too, but in general it shows  
6 that a few feet away -- and this is the same site just  
7 few feet away. The other trees were some place over  
8 there. And it seems to me that, again, here is a  
9 quality or a thought what our plans, our prescription  
10 could lead us.

11 I certainly would give this tree a good  
12 future, at least as a good start. I would say about  
13 the other tree, I don't know what is going to happen to  
14 it, the future is uncertain. And being involved in  
15 planting trees all my life I would say: Why don't we  
16 encourage this kind of establishment, this kind of  
17 early growth in order to promote quality instead of  
18 quantity.

19 Now, I'm not trying to say that poplar  
20 production should be entirely oriented and be  
21 restrained by the high quality product. There are  
22 places to do this, there are other places to do  
23 something else, but just a thought here that you have  
24 to start from the beginning because if you don't start  
25 from the beginning and establish a good quality stand,

1 sometimes it's very difficult to force the quality upon  
2 the tree later on. So this is about jack pine.

3 Next one, please.

4 Q. This is now slide 96.

5 A. This is a picture which I think is --  
6 deal a little bit with tending and it pertains to the  
7 area in the Clay Belt. The indicator of plants I show,  
8 it's an area in the lowlands and some natural  
9 regeneration was established by accident naturally. I  
10 don't know where it came from, but it's a large area  
11 which must have quite a bit of natural regeneration,  
12 perhaps by layering, perhaps by seed here and there and  
13 I think it was MNR who sprayed this area. It was  
14 before I got there.

15 This picture was taken in 1987 and it  
16 was sprayed right to the main road. So I wandered  
17 through this area and you can see the kind of  
18 succession of plants. Probably two, three years ago  
19 there was all kind of bullrushes there, you can see the  
20 remnants of the dry bullrushes, the site is drying out  
21 already, you can see by the death of bullrushes and  
22 also by herbicide spraying it was affected, the  
23 yellowing of the sphagnum moss; in other words,  
24 sphagnum was affected in this case also by chemical.

25 It took me a long time to find a

1 seedling.. I said: Why did they spray this? Then, of  
2 our, there is a flower I found. It's a black spruce  
3 advanced growth, probably of layers origin, and I said:  
4 Why do we need this considering that actually the  
5 vegetation or remnants of the vegetation was not really  
6 crucial to the survival of this fellow here, and there  
7 was one here and there was probably one over there.

8 I said to myself: This is large area  
9 blanket spraying where we throw the chemical. Most of  
10 it wasn't necessary here because this fellow didn't  
11 have hardly any competition there. There are some  
12 willows here, dried up leaves of willows and bullrushes  
13 here. Do we really have to spray these things? Do we  
14 have to invest extra money on account of sites which  
15 right is rehabilitating itself, regrouping into the  
16 kind of new face of the system itself?

17 And perhaps this should be reminded to  
18 many foresters, that before they prescribe a certain  
19 treatment they should give it twice a good thought: Is  
20 that really necessary, is that really such an urgent  
21 matter to use chemical to "release" the site.

22 In some of the cases, obviously it could  
23 be justified, but in many cases I don't think it is and  
24 I think that chemical spraying additionally increases  
25 the risks of the proper -- or affect the risk of proper

1 development of these sites.

2 So just in passing, I think we should be  
3 always reminded of the fact that before we prescribe or  
4 decide on a prescription we should have a second  
5 thought, intelligent thought and thought which give  
6 consideration to the future dynamics of the stand  
7 itself.

8 Next one, please.

9 Q. Now, Mr. Marek--

10 A. Yes.

11 Q. --do I take it from what you said  
12 that in this stand the conifers that are regenerating  
13 are regenerating naturally?

14 A. Yes, that's natural regeneration.  
15 This is natural -- you can see the trees advanced  
16 growth. It's natural regeneration, yes.

17 Q. Now, you said that perhaps this site  
18 didn't need to be sprayed. Is there any disadvantage  
19 in your view to the fact that it was sprayed?

20 A. The disadvantage I see here is the  
21 directive, relative relationship between this tree here  
22 and there; the area which has been effected.

23 We tried to release this, but we are  
24 affecting this by affecting the chemical effect on that  
25 forest floor, and I again go back to the forest floor



1 because this is one of the most important part of the  
2 forest ecosystem or stands, and we are affecting it and  
3 I think we are affecting negative; in other words, the  
4 damage to the mosses here or plants which were there  
5 doesn't serve the purpose.

6 These plants, which is a great effort,  
7 tried to be established on the site which was heavily  
8 disturbed by logging, should be probably left alone for  
9 a while until they become really dangerous to the tree  
10 or the time comes where you positively affect the  
11 productivity of the sites.

12 Here we took a step backwards by not  
13 directly protecting -- was minimum, but we affected the  
14 growth and the floristic composition of the forest  
15 floor which, to my thinking, is a negative step to  
16 maintain the site productivity.

17 The final point is, don't interfere  
18 unless you must interfere, but plan for the risk of the  
19 future.

20 Next one, please.

21 Q. The next set of slides now is a  
22 different subject area, it is modified cutting, and we  
23 will start with slide 101.

24 A. Madam Chairman, as has been suggested  
25 by your Board, by members of the Board, that

1 alternatives exist perhaps to do better or to  
2 understand better and prescribe better in our  
3 silvicultural efforts.

4 I took these slides here not because I  
5 want to be boosted for my effort in the area I worked  
6 for many, many, many years, but to show historically  
7 that the concept of modified cutting is not a concept  
8 which is done for sake of modified cutting. Modified  
9 cutting has many effects and for many reasons.

10 When I started the modified cutting  
11 approach way back in late 50's and 60's in areas I was  
12 active and worked for the Ministry, I have realized  
13 perhaps much more clearly that modified cutting is  
14 necessary for black spruce because I had the knowledge  
15 from European experience and also I have watched the  
16 black spruce since I came over here in 1950 when I  
17 worked for six years with Industry.

18 So I started operation trial. The kind  
19 of experimentation was gone. The experimentation for  
20 me was the period where I learned certain things and I  
21 tried to apply this on a broad operational level, and I  
22 had great difficulties with this because when you apply  
23 something on this kind, you obviously affect the cost,  
24 you affect the attitude of the company and Ministry of  
25 the government and you affect your own kind of

1 convenient job, performance, because when you introduce  
2 something new there is always extra effort involved.  
3 When you pioneer something there's extra work, extra  
4 effort beyond it, and in some cases when you do this,  
5 perhaps it's not fully appreciated.

6 This is one the -- not first, but some of  
7 the efforts where we started with St. Lawrence at that  
8 time large area modified cutting in the black spruce  
9 working group. I can pinpoint and I am visiting this  
10 area frequently to follow the dynamics, but you can see  
11 that modified cutting is restrictive cutting. You have  
12 to leave timber behind for seed source, for protection  
13 in order to consider the whole ecosystem itself.

14 The main objective, of course, is again  
15 to get back what I had; in other words, this was fire  
16 originated, 120 year old black spruce stand which I  
17 think if we are going to clearcut it, we are going to  
18 muck it up, we are going to do all kind of damage to  
19 these sites. We will not get back what I want  
20 voluntarily, so let's get together with St. Lawrence  
21 and implement these kind of things.

22 There are two different approaches. One  
23 is alternate one and one; one coup is clearcut, one is  
24 left standing 50/50. We call it cutting systems, we  
25 call it the two-cycle cutting system or you can call it

1 two-coup system. Here you can see three-coup system  
2 where area was divided into three different parts and  
3 consecutively or progressively harvested, coup No. 1,  
4 coup No. 2 and the rest of the area is coup No. 3.  
5 This is the second stage of this area here.  
6 (indicating)

7 Let's talk for a second, Madam Chairman,  
8 about the other benefits which I hope to achieve. I  
9 come from the country where multi-purpose forestry is a  
10 role. You cannot just do what you want, clearcut  
11 everything and say: Well, I have established an access  
12 which is, in the first place, I suppose in Europe  
13 because the access problem is different there, but you  
14 cannot just clearcut and say good bye, I am going to  
15 produce. You've got to have a pretty intimate  
16 contact with many other branches and so on to achieve  
17 because there are the biologists, there are the game  
18 keepers, there are people who are going to say: Well,  
19 just a second, I do this.

20 So the concept is well developed in  
21 Europe for many years. It works usually fairly well  
22 and a forester is in charge of these things. The  
23 forester is running it and responsible, he makes the  
24 plans, he makes very important decisions, but with very  
25 good thought for combination of other services and



1 needs.

2                   It's much simpler there because they have  
3 background information there, they do it for many years  
4 now and they have quite a knowledge and background  
5 information very nicely presented in these timber  
6 management plans. We can go and and say: Okay, 1920,  
7 this was done, the result this and this and this and  
8 they have this -- I'll never forget this because I work  
9 in these forest management offices for a while and you  
10 have this space headed for the future development; in  
11 other words, you have to pinpoint exactly what the  
12 plans are, what is being accomplished and audited and  
13 perused. The perusal is a very important thing, and we  
14 learned from it, just like anybody else has.

15                   So here I said to myself: By this  
16 cutting, obviously we are going to get some extra  
17 benefits and that is, of course -- see, this is a moose  
18 country, north is the moose country, and by this kind  
19 of cutting I thought I will create kind of habitat or  
20 condition for moose to use it and get feeding or  
21 browsing grounds and condition much more better than if  
22 that whole thing was clearcut.

23                   It was fairly rough terrain. We laid it  
24 out together. I saw -- between St. Lawrence and I  
25 actually worked on it and then established these

1 patterns and this was not perfect, it was good  
2 operational step in modified cutting.

3 Next one, please.

4 Q. A couple of questions, first.

5 A. So this was 1967, I believe?

6 Q. We don't have a date for this.

7 A. Yes, 1967.

8 Q. Do you mean that it was laid out in  
9 1967?

10 A. Or '65 probably. We were cutting in  
11 '65, '66 and the rest I think was cut in 1967, first  
12 cut, their first coup was their first system.

13 Q. Now, was the effort to get natural  
14 black spruce regeneration back on this cut-over  
15 successful?

16 A. Very successful. The first strip,  
17 the second strip regenerated very well naturally.  
18 Again, the number of seedlings varied from 5-, 10,000  
19 up to 20-, 30-, 40-, 50,000 seedlings per acre,  
20 depending on site preparation, depending on the  
21 microsites where these seedlings got established, but  
22 in general the stocking of these strips in the first  
23 and second year were always way beyond 40, 50, 60, 70  
24 per cent. It was always at least 80 per cent. That's  
25 what I think it should be in a natural stand.

1                   In other words you have all kinds of seed  
2           coming in with all kinds of seedlings; in other words,  
3           I was trying to duplicate nature to some degree or  
4           duplicate -- but not duplicate the approach. It was  
5           from a natural point of view.

6                   Q. Can you tell the Board approximately  
7           what the size of land is?

8                   A. Quarter of a mile. It was quite a  
9           considerable -- it continues here up farther up to the  
10          north. It was quite a large area. It was operated...

11                  Q. And can you indicate to the Board  
12          parts of the forest here that are buffer zones for the  
13          cut?

14                  A. What, upper zone?

15                  Q. Buffer zone.

16                  A. Oh, buffer zone. Oh, I see.

17                  Q. And explain what they are and what  
18          they were used for.

19                  A. Very well put. I think that one of  
20          the most important parts of strip cutting or successful  
21          strip cutting, Madam Chair, is that you don't consider  
22          this strip cutting by itself; in other words, you have  
23          to create conditions around the strip cuts which would  
24          be conducive to the proper implementation of -- results  
25          of it. In other words, you are affecting strip cutting

1 by creating certain buffer zones.

2 And that has been controversial because  
3 creating buffer zones means extra restriction on the  
4 operator to leave standing timber, to protect these  
5 strip cuts, and buffer zone may -- buffer zone very  
6 much depends on the terrain, on the landscape, on  
7 stands and condition of the stand around these strip  
8 cuts where you are going to implement actually strip  
9 cutting, and in itself, the hilliness, the natural  
10 protective mechanism, not only leave buffer zones, but  
11 it has got to be a zone which is going to make sense to  
12 protect against wind, because wind is coming usually in  
13 a southwesterly direction.

14 So you have to be extra specific to  
15 protect it from the southwest because if you don't do  
16 it, you open that whole strip cut or all that patch  
17 cut, or whatever it is, to the disruption by wind and  
18 that means more blowdown, that means implementation of  
19 success of these strips will not be as efficient as  
20 they should be.

21 So consideration of buffers are always  
22 important, to tell you if it's going to be 10 feet, or  
23 100 feet or 200 feet or if there is going to be a stand  
24 left there. So it's difficult here because you have  
25 such a various conditions, so it's got to be strictly



1 done on the merit of terrain and prevailing winds.

2 Next one, please.

3 Q. Now, what part of that slide is a  
4 buffer zone? Could you tell us?

5 A. There is no buffers in at all. This  
6 was just set up amongst uncut timber; in other words,  
7 this is uncut timber, which is cut now. That's all  
8 cut, it was harvested many years ago, but here, these  
9 are just mile and a half of area which was selected for  
10 operation. The "normal operation" was carried out here  
11 and this was uncut timber, so in this case I cannot  
12 talk about buffer zones because there was no cutting  
13 implemented as yet. (indicating)

14 MR. MARTEL: What is considered the major  
15 factor against this sort of layout and planning?

16 THE WITNESS: Restriction. It's a  
17 restrictive method of doing things; in other words, you  
18 cannot remove all timber, all volume from the area.  
19 That's No. 1.

20 No. 2, there is an extra effort to be  
21 made in this kind of cutting because -- you know, in  
22 the clearcutting you just go and say: Okay, this is  
23 going to be clearcut, lay out the roads usually and  
24 then you manage from there on.

25 In this case, you have to have somebody

1 who is going to lay out this pattern, you have to give  
2 consideration to the whole roads and to landing sites,  
3 you have to consider extra planning because you are  
4 going to require extra roads because you are harvesting  
5 here only half of the available volume. So there are  
6 several of them and these all have to be incorporated  
7 into the planning process.

8 Now, we want went through it, we went  
9 through these things in the 60's quite frequently and  
10 one of the main objections at that time by industry was  
11 the simple cost, simple cost. They say: Look, if you  
12 are going to force us to cut in comparing to the  
13 clearcut, there is additional money involved, another  
14 expenditure, extra taking care, and our machinery is  
15 not suitable for this kind of cutting where we cannot  
16 take a full swath of timber on under certain  
17 conditions.

18 So the objection I think from financial  
19 right down to safety aspect has been always emphasized  
20 by industry, always emphasized by industry, and  
21 immediately I suppose -- the extra cost has been  
22 expressed on many meetings we have, which I chaired  
23 myself and initiated myself. You know, always the cost  
24 was a very important aspect and perhaps, let's be  
25 clear, decisions in implementing these things in 1967

1 was: Who is going to pay the extra operating cost.  
2 Who is going to pay for it? Should government pay for  
3 it or...

4 MR. MARTEL: If you do this sort of  
5 planning and cutting, your costs in terms of  
6 regenerating would reduce that.

7 THE WITNESS: Right.

8 MR. MARTEL: And would you not be better  
9 off putting more money into - I know this flies in the  
10 face of everything we have heard - into roads which  
11 could see you going back, making them to a standard  
12 that you could go back so as to reduce costs? Would  
13 they balance out--

14 THE WITNESS: Yes.

15 MR. MARTEL: --the cost and have more  
16 natural reproduction and not affect people like, for  
17 example, trappers and so on?

18 THE WITNESS: Very well put. However,  
19 again, if I may describe some of these processes which  
20 I had to go through, and believe me or not we  
21 considered them all. As a matter of fact, we  
22 considered many which I didn't like to hear.

23 But the the fact is that if we are going  
24 to practice this kind of management, Madam Chair, I  
25 think the whole attitude to our forestry will have to

1 change. I think that the voices which I hear from  
2 British Columbia, from Alberta, wherever, really have a  
3 problem of aesthetic values where people say: We will  
4 not see this large clearcut on the mountain sides and  
5 then erosion and this.

6 As a matter of fact, I received just a  
7 few days ago new prescription for B.C. done by  
8 Wheetman, and it seems to me that in order to convert  
9 what you have seen so far in the clearcuts, these  
10 horror picture - let's call it the horror show - into  
11 this, is going to require more than financing, it's  
12 going to require more than this risk comparison between  
13 clearcutting and planting and so on, it's going to  
14 require a mental, a psychological change in our outlook  
15 on forests in general.

16 In other words, the economics indeed  
17 plays a very important part, but it's going to be in  
18 this kind of comparative, as you suggested, if we go  
19 this, you know, how much is it going to cost if we do  
20 that. So cost benefits are important if you can model  
21 it and you can put in the true cost. I'm talking about  
22 the truthful cost with I, as a forester, as a taxpayer,  
23 can deal with.

24 When somebody comes to me and going to  
25 start bargaining, as is done usually between management



1 and union, union put up high cost and industry says:  
2 Oh, we are going to be bankrupt, we cannot put up with  
3 that thing. You see, there you have a too polarized  
4 approach which I would compare with this situation  
5 because when I was dealing with this issue -- and you  
6 don't dealt with this issue in Europe.

7 In Europe, there is a law in timber  
8 management plan prescriptions that you do it this way  
9 regardless. That's got to be done for reason one, two,  
10 three, four, five. You know, the reasons which I tried  
11 to dealt with here, too; water, the whole ecological  
12 aspect, aesthetic aspect. Oh gosh. Then you have a  
13 law on your side which says: This has got to be done.  
14 For reasons such it has got to be done.

15 The moment you have a law like that, the  
16 forest manager is going to say: Hallelujah, nobody can  
17 blast me, nobody can fire me, law say this, so let's do  
18 it. This is a good prescription, this is sound  
19 forestry which is accepted there, but, Madam Chair, are  
20 we at that stage here nowadays where industry and  
21 government - fortunately, government play a very  
22 important part - and all of us are going to say: Yes,  
23 this is the kind of forestry we are going to accept  
24 because it is going to No. 1, 2, 3, 4, 5. So it's the  
25 psychology, too.

1                   Let's do it because we like to do it,  
2       let's do it because it has to be done, here are the  
3       benefits, and that's going to require quite a change in  
4       the attitude I have seen so far being practiced. Don't  
5       forget, the economics aside from tree planting, renewal  
6       to the last -- the cutting should be reversed. I  
7       suppose the cutting should initiate the first -- as you  
8       rightly pointed out, let's start with cutting  
9       practices, what it does, what it doesn't do. How does  
10      it serve to us all, not only the company, but the  
11      public. And once you realize that, then you put in the  
12      norm and give a forester free hand go to it and  
13      implement it. So it's a complex thing which has to be,  
14      I suppose, born yet to look at this problem in such a  
15      way.

16                   I'm suggesting to you that for many sites  
17      in the boreal forest, especially when you go farther up  
18      north - farther up north it's more rocky, more swamps,  
19      more difficult road building - that this will have to  
20      be implemented. We probably should have done long time  
21      ago. We could have a good black spruce regeneration  
22      which resembles some of these things long time ago  
23      instead of mixture of balsam and other species, these  
24      "slums" Dr. Baskerville is dealing with, and I know  
25      what it is because I discussed it with him.

1                   Let me point out that it's going to  
2   require quite a reverse in the attitude towards forest  
3   lines. Then you can deal -- after you have got this,  
4   Madam Chair, then you can start talking about  
5   multi-purposes, not before that. As long as we are  
6   going to typify or practice normal operation, which I  
7   have questioned already, I said: What do you mean by  
8   normal operation? What is it? What quality of  
9   forestry are you talking about, and so on. I'm puzzled  
10   because this to me should be the normal operation, but  
11   it isn't.

12                   It's dry here, a few acres, and I think,  
13   according to the statistics I'm getting from MNR and  
14   from these hearing, the testimony show two and a half  
15   per cent of modified cutting, something like that, I  
16   may be wrong a few per cent, but when you talk about  
17   this scope of this operation, you talk about here mile  
18   and a half square. This should have been all strip cut  
19   probably, it's not, most of it is clearcut and planted  
20   to jack pine or some of it is not planted at all, just  
21   left. You can see the horror picture I showed before.  
22   So this is going to require that we embark on a new way  
23   of thinking in forestry, and that is fairly complex.

24                   MADAM CHAIR: Mr. Marek, one question.  
25   As a rule of thumb or as a very rough guess on your

1 part, would you say that the timber volume that you  
2 could obtain from a modified cut would be about half  
3 the volume you could clearcut?

4 THE WITNESS: Approximately. In this  
5 this case, yes, approximately.

6 MADAM CHAIR: Would you say that it would  
7 take, in an operational sense, twice as long to do a  
8 modified cut as it would a clearcut?

9 THE WITNESS: Well, in clearcut you don't  
10 mean -- you just remove all standing timber in one  
11 shot; in other words, when, for instance, in this  
12 case --

13 MADAM CHAIR: If it took a week to  
14 clearcut that entire area.

15 THE WITNESS: Well, that all depends on  
16 the type of operation the industry is supplying here.  
17 This may be done in one year, this may be part -- in  
18 this case, this was done in one season; in other words,  
19 it was cut in two months or three months there were  
20 there and implement this modification.

21 MS. SWENARCHUK: Mr. Marek, correct me if  
22 I am wrong, Madam Chair, but I think the question Madam  
23 Chair is asking is this: When you are using modified  
24 cutting, does it take more time to remove the same  
25 amount of timber as if you are using large area



1 clearcutting?

2 Is that the correct question, Madam  
3 Chair?

4 MADAM CHAIR: Yes, it is.

5 THE WITNESS: In other words, you talk  
6 about restrictive aspects of this system.

7 MADAM CHAIR: Yes. I want to know, if we  
8 are to going to obtain half the lumber of the same  
9 area, it wouldn't be within the same time that we would  
10 obtain that through modified cutting, it would take  
11 longer to do a modified cut on an area compared to  
12 clearcutting.

13 THE WITNESS: Considering that you have  
14 to take care not to damage the standing timber; in  
15 other words, you have to design the movement of  
16 machinery, you have to design probably the landing  
17 sites. In other words, the planning process indeed is  
18 more complex, it's not the simplest thing as, you know,  
19 go there and clearcut, take that wood as far as you can  
20 go and if you have 20,000, cut 20,000 and go someplace  
21 else.

22 In this case, you have to prepare  
23 yourself mentally, physically and everything for this  
24 kind of thing and I suppose that's vital because when  
25 you compare the simplicity of large area clearcut

1 management -- and I have this terminology put in my  
2 references there, what I mean by large area  
3 clearcutting and small area clearcutting. This, of  
4 course, requires extra effort, obviously. It's not as  
5 simple as go and clearcut.

6 MR. MARTEL: How long before you go back  
7 and cut again?

8 MS. CRONK: I'm sorry, Mr. Martel, I  
9 can't hear you.

10 MR. MARTEL: I'm sorry.

11 How long would it be under that type of  
12 process before you could go back and take the next cut?

13 THE WITNESS: The answer is, again, you  
14 cannot generalize because it's going to depend on site  
15 preparation, on the stocking, desirable stocking.

16 If you are going to say, my desired  
17 stocking or desirable stocking or prescribed stocking  
18 is 40 per cent on black spruce being regenerated on  
19 these clearcuts, you can get it in one year. If you  
20 say I want to have 80 per cent, it's probably going to  
21 take two years or three years, and even longer in some  
22 places.

23 MR. MARTEL: We are not talking 15 years  
24 before we go back? I think the concern is that if  
25 economically there is a problem in that you don't take

1 as much wood the first time around, and we've heard  
2 evidence that part of the problem is economical because  
3 the road network deteriorates and you have got to put  
4 the road back up to standard the second time you go  
5 around.

6 THE WITNESS: That's correct.

7 MR. MARTEL: There's a couple of things I  
8 would like to know: (a) when you go back, and I'm not  
9 talking to be specific; the other thing is why I  
10 started out by saying, if we were putting more money  
11 into roads that were of a better quality than, let's  
12 say, is occurring today, thus being able to go back  
13 without a lot of expenditures to take the second cut--

14 THE WITNESS: Right.

15 MR. MARTEL: --how do we balance that  
16 off, just say if we could reduce the costs in terms of  
17 having to spend a lot of money in terms of regeneration  
18 such as getting stock ready, seedlings and whatnot?

19 I mean, it is that whole package that I  
20 don't -- the evidence I have read to this time really  
21 doesn't tell us a lot about those costs as you play one  
22 off against the other.

23 THE WITNESS: As you know, there has been  
24 cost done. The CFS did some cost of these areas in the  
25 Nipigon District. There are pamphlets and books

1 written. Ketcheson is one of them who did an economic  
2 study and this is presenced -- did anybody else  
3 present that study?

4 MS. SWENARCHUK: Yes. Mr. Marek, can I  
5 just interrupt for one second.

6 THE WITNESS: Yes.

7 MS. SWENARCHUK: Mr. Martel - and I will  
8 wait until he is finished and expand on this slightly -  
9 that's exactly what we have attempted to have done in  
10 the Panel 7 of our evidence.

11 MR. MARTEL: Well, I am only on Panel 6  
12 now.

13 MS. SWENARCHUK: Three. Oh, I see, in  
14 your reading.

15 MR. MARTEL: I'm sorry, I'm not a reading  
16 machine.

17 MS. SWENARCHUK: So please proceed, Mr.  
18 Marek--

19 MS. SEABORN: You are ahead of most of  
20 us, Mr. Martel.

21 MS. SWENARCHUK: --with Mr. Martel's  
22 question.

23 THE WITNESS: I will proceed by saying  
24 again that considering all this "economics" of this; in  
25 other words, what I hear so many times is the extra



1 cost of this, the roads you are talking about.

2                   Going back to your original question, Mr.  
3 Martel, I look primarily in the forest for good natural  
4 regeneration of healthy new forest. That is a very  
5 important duty because if I achieve that efficiently, I  
6 achieve other benefits through it.

7                   I suppose our foresters and our people in  
8 higher places should realize that the perpetuation of  
9 healthy forest is a very important objective. Let's do  
10 it first.

11                   The second phase I would say is this, how  
12 we achieve it, it's going to be extra cost, if it's  
13 necessary let's do it to achieve it; in other words, if  
14 there will be extra cost, they have to eventually  
15 decide who is going to pay for it, who is benefitting  
16 from it, and timber is benefitting in the first place  
17 because I think we establish good natural regeneration,  
18 good growing stock for our future, good growing stock  
19 for our future. That's a sustainable policy, that's  
20 something we all over the world should hear loud and  
21 clear. We cannot afford to muck up our country to  
22 heck.

23                   The second is that the additional  
24 benefits should be put into the models or the  
25 prescriptiona eventually and say this: Now, there is

1 not only that benefit of getting this black spruce back  
2 where black spruce were before and we will very north  
3 to get the same stands or similar stands to what we  
4 have.

5 There are other benefits and the benefit  
6 is that we're in a never-ending struggle for  
7 mutli-purpose forestry which is developing throughout  
8 the world. It's not only in Canada, always we are  
9 fighting this, who are you going to serve? Are you  
10 going to serve the moose managers, are you going to  
11 serve the loggers, are you going to serve the public  
12 who likes to have a vista and likes to have a green  
13 forest all over forever.

14 This has to be taken into consideration  
15 and this is the first elementary step. This is a very  
16 elementary step which we should obey and say: Good,  
17 healthy new regeneration is of primary importance to  
18 follow up later on. How long are you going to take to  
19 establish this forest here, how are you going to keep  
20 these strips for two years or five years and ten years.  
21 There are books written on it, and again I go back to  
22 Alberta and B.C. where they specify now that in some  
23 cases for other benefits, multi-purpose benefits, some  
24 of the original stands of merchantable timber has to be  
25 kept for 15 years, until they reach certain height and

1       until they can hide the elks and goats and I don't know  
2       what else.

3                       This is put in, discussed, pro and con  
4       and prescribed and implemented. In this case, in  
5       management of black spruce, I will strongly advocate  
6       that this can serve moose very well, this can serve  
7       moose for a few years and by establishing this  
8       regeneration of black spruce here in the first place  
9       would serve other purposes, too.

10                      Now, if this would be done across the  
11       board in stands depending on site condition -- again,  
12       I'm not prescribing this for jack pine, I'm not  
13       prescribing for management or other working groups.  
14       What I'm saying in black spruce is to clearcut this and  
15       plant it is a wasteful practice because, No. 1, we have  
16       to waste lots of money to reforest it by artificial  
17       regeneration, the risk involved with artificial  
18       regeneration, the benefit to moose is loss because we  
19       are dealing with larger clearcuts and the other species  
20       of wildlife is obviously affected here.

21                      So let's say that the primary objective  
22       is establishment as quick as possible of sound, healthy  
23       regeneration of black spruce which may be done in two  
24       years, three years, sometimes it's going to take five  
25       years, maybe in some cases we are going to do it after

1 10 years if the health of the stands issuitable for it.

2 See, of the problems we are having in  
3 Ontario is that many of these so-called black spruce  
4 ecosystem or this large area of black spruce is in  
5 different condition, and I'm talk about through  
6 maturity; there is no constant. Everything is  
7 changing. You may have lots of blowdown here next  
8 year, you may all kinds of conditions because these  
9 stands are very old or some of them are very old and  
10 you are going to treat it in a different way.

11 In the stands which are capable of  
12 support with more area clearcut management, let's do it  
13 in the first place. Let's start documenting the  
14 benefits and I think that way we would solve many  
15 problems which are now conflicting interest between  
16 fish and wildlife and other users. That's a good start.  
17 and we have to start someplace.

18 As a forester, let me say very clearly it  
19 worries me no end that we start extremely complicated  
20 procedures right at the beginning when we didn't even  
21 make one first step, one first step to implement  
22 something which deals strictly with the basic: Let's  
23 have a young healthy stand of black spruce, and then  
24 start planning for the other.

25 We cannot get all this result in one or



1 five years. I'm quite sure it's going to take longer  
2 than that. Let's get the basic information, let's  
3 get -- one of the problems I have, Madam Chair, was  
4 that after 12 years being Chairman of a black spruce  
5 working group, which dealt with this issue at nauseum,  
6 we discussed it for nights and days, drinking,  
7 discussing, we discussed it scientifically, we  
8 discussed it vulgarly, just cursing each other and  
9 there are some --

10 MADAM CHAIR: You sound like the Board,  
11 Mr. Marek.

12 THE WITNESS: The research has been  
13 stopped.

14 MS. SWENARCHUK: You know this was not  
15 rehearsed, Madam Chair.

16 THE WITNESS: The research has been  
17 stopped, the CFS is not involved anymore and we have  
18 half done, half cooked recommendations dealing with  
19 prescriptions, dealing with some documentation, but  
20 it's not applicable because it's half cooked, it's half  
21 done; never ended.

22 MADAM CHAIR: Mr. Marek, I think you have  
23 answered Mr. Martel's questions, but there was one  
24 aspect that I didn't hear and that is, what is the  
25 length of time you are prescribing for the second coup?

1 When would you go back and cut that?

2 THE WITNESS: Okay. In this case, we cut  
3 it at two years, in this case, let me be clear. And we  
4 did -- let's see what's happened in two years. If we  
5 get stocking, which is 80 per cent - and I always base  
6 all of this on 80 per cent, as you will see later on in  
7 some of these prescriptions presented by FFT - let's  
8 see what -- in this case we didn't consider at all, we  
9 didn't discuss the other benefits at all, we didn't  
10 discuss moose, we were strictly talking: When can you  
11 get the regeneration of black spruce on these sites.

12 I said, from my previous experience which  
13 I have done in the 50's, in two years I can supply here  
14 healthy regeneration, natural black spruce, and we got  
15 it, and that was a beginning. From there, I would say:  
16 Okay, give we accomodate other users, can we say that  
17 perhaps that spruces has got to be a metre high, two  
18 metres high in order to serve moose, in order to serve  
19 some the uses, let's discuss it. Let's discuss this,  
20 let's go back and examine what should be done and what  
21 could be done.

22 In many areas in British Columbia, in  
23 Alberta, strip cutting is done, this kind of modified  
24 cutting is being done. There's a period between  
25 cutting up to 15 years. Now, if you are going to leave

1       this stand, 15 year strip cut, like this and tackle the  
2       second coup, you may run into problems, additional  
3       blowdown, you may have a problem with access, as Mr.  
4       Martel explained because we don't maintain the roads  
5       and after 15 years you have to build a new road as it  
6       is right now or do some kind of investment.

7                       These are the options we have and they  
8       should be documented, they should be analysed from  
9       various points of view, from timber right down to fish  
10      and wildlife and then implemented.

11                     MR. MARTEL: You wouldn't lose any wood,  
12      though, you would go back the second time, would you,  
13      and -- I mean, the loss of wood, is it a factor, or  
14      would you lose any wood or is it that you would have to  
15      wait until the second cut to get the sum total of what  
16      you would get out of there if you were clearcutting?

17                     MS. SWENARCHUK: I think Mr. Martel's  
18      question, Mr. Marek is: Is there a reduction in the  
19      wood volume that you can get out of the area because  
20      you have used a modified cut rather than a large area  
21      clearcut?

22                     THE WITNESS: Is that so?

23                     MR. MARTEL: Yes.

24                     THE WITNESS: Okay. Are you especially  
25      referring to the blowdown, deterioration of these

1 stands?

2 MR. MARTEL: No. The thing I wonder  
3 about is I don't know -- let's say you went back in  
4 three years after the initial cut--

5 THE WITNESS: Right.

6 MR. MARTEL: --unless you had blowdown,  
7 would there be any loss of fiber for the industry?

8 THE WITNESS: Well, fiber is -- the  
9 losses are twofold; through the natural deterioration  
10 of the stands which occurs through the development and  
11 dynamics of the stand in which you get certain ages.  
12 Deterioration occurs, setting of the -- blowdown.

13 And there is, of course, other one which  
14 is called strictly by the interference of this cutting  
15 because even in a moment when you remove one single  
16 tree out of the stands you are affecting the  
17 surrounding of that tree. You are taking it out of the  
18 system and affecting immediately the surrounding. We  
19 should be aware of it.

20 Now, with proper layout, with  
21 consideration of buffers, with proper planning and  
22 understanding of the system itself, we can avoid or  
23 minimize many of these detrimental aspects, including  
24 blowdown.

25 Now, one of the big problems with



1 modified cutting is, for instance, size or width of the  
2 right-of-way. When a company puts their road through  
3 these stands like this, they would like to have a  
4 right-of-way which accommodate all this monstrous log  
5 they have; in other words, the machinery. So we have  
6 got to have lots of room to move around, we have lots  
7 of room to get different right at the beginning and  
8 they like to operate on large room.

9 In Europe, Madam Chairman, operation is  
10 done with small equipment which can turn around between  
11 you and I, not damaging this site, considering the kind  
12 of buffer protection, considering the welfare of the  
13 stands which it left behind. They just can't afford to  
14 have a 200-foot or 300-foot right-of-way, big landings  
15 and this because it wouldn't fit in the country. They  
16 will be crucified. If Swedish, in some of the lands I  
17 visited, were to operate this kind of way, they would  
18 be out of business. People wouldn't allow it. The  
19 forester wouldn't go for it.

20 So everything is on a more protective  
21 scale, and this term protective, again it's part of the  
22 forest management, protective aspect. So you have to  
23 design equipment, you have to have consideration, you  
24 cannot back up bulldozer there and get the bulldozer  
25 over there, run the bulldozer over these strips and

1 say, heck with that, we are going to get -- you cannot  
2 do that. You've got to always have that better  
3 protective aspect of the second growth and that's new  
4 to us, too. We didn't operate that way. Company have  
5 lots of room, lots of space, do this, because it  
6 doesn't require extra effort.

7 It's a mental thing, too. Sometimes when  
8 I look at this right-of-way I asked the manager many  
9 times, I say: Why are you making such a wide  
10 right-of-way. Well, you must know that the cost of the  
11 road has got to be covered, and of course I understand  
12 exactly what they mean. The more wood you recover from  
13 the right-of-way, the cheaper that wood is from the  
14 right-of-way and you support the cost of the road.

15 You see, there is a connection. If you  
16 take a right-of-way half a mile wide and it goes  
17 against the cost of road building, then, you know, it's  
18 a matter of strictly economics. If you only make it  
19 pass where you say 50 feet or one chain, 66 feet, then  
20 you recover less wood from that area and you have  
21 lesser pull for your wood cost on the road, road  
22 building.

23 There are many inter-related things which  
24 has to be changed and say: Okay, we really don't need  
25 that wide right-of-way which affect the faces of this

1 strip, higher blowdown and some of these things which  
2 should be avoided, but it's not as simple because we  
3 are locked into the system which now goes for 50, 60  
4 years up north, make it simple and make it cheap.

5 Now, what is the answer to it. Who cares  
6 about regeneration, who cares about this, make it cheap  
7 and quick and that's a mental -- that's a philosophy  
8 that sometimes has to be pushed or volunteered by the  
9 loggers to say, our responsibility is not only to get  
10 that wood out of there.

11 Madam Chair, the wood in Sweden is three  
12 times price of our wood. A cord of wood in Sweden cost  
13 three times as our wood here. Swenden, Finland, in  
14 many countries, subsidize heavily forest management by  
15 funding a large percentage of the income from their  
16 wood, from the Crown lands or private lands, back into  
17 the forest and they are still competing successfully  
18 with our production of wood based on the fact that our  
19 mills are archaic, they do not produce 95 per cent or  
20 100 per cent recovery, and by recovery I mean you take  
21 a cord of wood here and you take it down to Domtar mills  
22 and they will flush out only probably 65 or 70 per cent  
23 of sawlogs.

24 The Swede's have a mill which produce 95  
25 per cent return. Look at that saving there, look at

1 that saving there. How many per cent is that? And  
2 that can be saved if we have better technology of our  
3 mills.

4 The secondary aspect is that the  
5 government for very specific reasons is putting money  
6 back into forestry because they have to, otherwise  
7 probably would raise hell. They have to put it back  
8 and they do it and sometimes with a -- or red sign.  
9 They do it and perhaps that is a part of the solution  
10 here because somebody is going to have to pay for it,  
11 somebody is going to have to realize that forestry just  
12 doesn't happen.

13 We have to decide between us who is going  
14 to pay for it. There is lots of money to be saved by  
15 conservation method, by protective measures and I  
16 suggest we should change the philosophy on your forest  
17 land period. Amen.

18 MS. SWENARCHUK: Madam Chair, I don't  
19 propose to try a follow-up to this, so I thought this  
20 might be an appropriate time to break for the day.

21 MADAM CHAIR: Let's call it a day, Mr.  
22 Marek. We will see you on Monday morning at nine  
23 o'clock.

24 Mr. Freidin?

25 MR. FREIDIN: I was just going to say



1 Mr. Iskra, if you recall, may be upset that he lost the  
2 record for the longest time on one slide.

3 ---(laughter)

4 ---Whereupon the hearing was adjourned at 4:00 p.m., to  
5 be reconvened Monday, November 5, 1990 commencing at  
6 10:00 a.m.

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